THE PAPER INDUSTRY

REG. U. S. PAT. OFF.

Vol. 11 SEPTEMBER, 1929 No. 6

How the Purchasing Agent of a Paper Mill Functions

His Plan for Handling Requisitions for Supplies of Various Kinds and the Order Forms Used

By WALDO HUTCHINSON

THE general purchasing agent of a manufacturing firm has three chief functions. The first is to design and maintain efficient routine methods for his department, which will be described later. The second is to see that there is a steady and sufficient stream of materials. The third function is characteristically financial—the proper control of inventory stocks.

The rag, paper stock, and pulp buyers, as well as the coal buyers, deal in supplies of great volume. Contracts must be made with a full knowledge of the various markets. Such large contracts involve financial preparation.

The general purchasing agent has the attitude of the big business man, as if he were in business for himself. He must look far in advance and at the same time have a detailed view of each and every one of the articles bought.

A budget covering purchases for at least four months in advance is furnished to the treasurer by the purchasing department so that the financial department may know what the approximate requirements are to be.

Contracts which are important to the operating finances of the company are not closed without the personal attention of the general purchasing agent. When a large purchase is involved, requiring special trading activities, the assistant purchasing agent of the division involved prepares all details and makes preliminary arrangements to be placed before the general purchasing agent for final approval.

After the bulk material is contracted for in advance, the division heads still have an important function to fulfill. Each division head places necessary shipping specifications against contracts and allocates the materials to the departments in accordance with the mill's demands. Each shipment is sent directly from the source to the department or particular mill which needs it.

Each head of a purchasing division is in control of the stores of his particular material in all mill storerooms. Correct up-to-date inventory methods must be maintained to furnish accurate inventories of all stock on hand, no matter what may be its location.

A "material report", Figure 1, is maintained to display promptly at the end of each month the number of times the more important materials are being turned over. This yearly turnover rate is based on material values.

A low turnover rate means unnecessary expense in interest on inventory. A frequent turnover, regular and smooth, means a considerable saving.

By keeping closely in touch with turnovers and by prompt transfers of stock from one department to another the inventories are kept at a minimum, with an ample factor of safety provided for production.

The division of printing and office supplies, and the division buying for the maintenance department, are able to get for any man in the plant just the thing that he requires, even if it is only one small piece.

Of all requisitions, 95 per cent are for the maintenance departments. They are not so great a part of the total money value of purchases, but they form 95 per cent of the actual requisitions which

have to be handled by the purchasing department. Therefore, they have a large effect on the design of purchasing forms for actual everyday use.

The methods of purchasing fit all the kinds of purchases made, both large and small. Therefore, they are simple. They insure automatically the exact fitting of the purchase to the need, and they are in correct legal form. They are reduced to a matter of routine because so many purchases are handled in the course of a day or a year. They incorporate all the short cuts possible; they make each document do the work of two or three if possible.

MATERIAL REPORT

Month Of_____ December _____ 19____

Classification Of Inventory		Inventory	Purchases	Actual Consumption	Turn Over On Values			
					Dec.	Nov.	Oct.	Sept.
Process Supplies	Pounds							
	Unit Cost							
	Value				15.4	19.8	20.7	12.1
	Pounds							
	Unit Cost							
	Value				13.3	16.6	13.9	8.6
	Value							

FIGURE 1

Quick Turnovers Mean a Saving

The rate of turnover on a yearly basis of the materials used, is figured on this sheet. A low rate of turnover means that too much capital is tied up in stock inventories.

Design of Requisition Blanks

All requisitions for supplies which originate in the manufacturing office departments are made out on a small standardized blank, Figure 2. This blank is supplied by the central purchasing department to all foremen and office heads who have the authority to order supplies on requisition. It is part of, and fits in with, the purchasing system.

The requisition forms are made up in pads into which carbon or copying tissue can be inserted. The foreman makes out three copies: one blue; the second, yellow, and the third, white. The first two copies, the blue and the yellow, go to the purchasing department. When the requisition in duplicate reaches the purchasing department, then the number is assigned according to the order of its arrival. In this way only can serial numbers be properly assigned.

The yellow copy is returned to the foreman or other department head who sent in the requisition. The third or white copy is retained by him. When the yellow copy comes back with a number, his white copy is destroyed and the numbered yellow copy takes its place in his files. Thereafter he knows how to talk to the purchasing department about his requisition by number, which greatly facilitates inquiries regarding delivery. If this method were not followed, there would have to be so many numbered pads distributed among the foreman and superintendents, in the mill office and the many departments of the administration office, that the numbers would reach the purchasing department entirely out of sequence and would serve no purpose except that of identification. Assigning serial numbers in the purchasing department, however, identifies their order of precedence and shows approximately the time when they came in, and this controls delivery.

Purposes Served by Requisition Blank

This requisition blank at a casual glance is apparently only one document. Viewed when it is lying with the long edge toward the foreman, it is merely a note to the purchasing department, "Please order the following." When it reaches the purchasing office, however, it is turned up on end and becomes an instruction blank on which the general purchasing agent can order his buyer to buy the material described from a named source and at a definite price.

Changing the direction of printing on one part of the blank prevents any possibility of confusion. It requires the foreman to confine his data strictly to his own part of the sheet—the large rectangle in the center. Such an arrangement is of material aid in keeping the forms neat and correct.

Q518—1 No._____

REQUISITION FOR SUPPLIES
Confine requisition to one class of articles

PURCHASE DEPT.—Please order the following:

Deliver to_____ Division 6_____

Required for_____

Specified by_____ Approved by_____

FIGURE 2

Two Forms in One

The foreman or superintendent makes out the requisition telling the material that is required and when it is needed. After investigating prices and so on, the left end of the form is used for the purchasing agent to issue an order for the purchase.

As soon as a requisition is received and it is decided that the material must be bought on the outside, the requisition is consulted for the date when the material is needed by the foreman, as well as to determine whether there is time to send out inquiries for prices. Rush material is usually ordered in town or by telegraph from a previously known

source; but inquiries are sent out on all requisitions when the time element permits.

Method of Coding the Requisition Blank

The form of the inquiry blank used is shown as Figure 3. Several may be sent, one each to several firms, but all those for the same lot of goods bear the same inquiry number. The inquiry number is partly a date in code. For instance, 518 is part of the number of every inquiry sent out May 18th. This is followed by a dash and a figure which indicates the sequence in which inquiries for different lots were sent out.

In order that no inquiries for two different requisitions shall bear the same suffix number after the date, inquiries made out in all divisions go to one clerk in a department to be assigned the proper number.

The purchasing department's copies of outgoing inquiries are at once filed in daily folders. All inquiries sent out from all divisions in one day are filed together in the same folder for that day. This facilitates matching up returned quotations and in following up those not returned.

This central filing service is more economical, more compact, and faster in operation than if the requisitions, inquiries, and orders were classified according to the five purchasing divisions, and filed accordingly.

Since serial numbers are assigned to requisitions in sequence as they come in, the folder containing all inquiries sent out on a given date will correspond closely to a group of requisitions and orders in the requisition files. This facilitates the routine work of matching up a batch of inquiries with the corresponding requisitions or orders. It is only necessary to handle two or three folders each day.

To still further facilitate matching, each inquiry bears a cross reference to the requisition number; and the filed requisition also bears at the top the corresponding inquiry number, preceded by "Q" for query. This is written on the requisition as soon as the inquiries to the vendors for the material on that requisition are made out and numbered.

Keeping Track of Inquiries

When inquiries are sent out to several firms, a memorandum list of these firms is made on the back of the blue requisition. Suppose inquiries for the same goods are sent to three separate firms, the Squire Nail Company, Russell Manufacturing Company, the Jones Hardware Company, "Squire," "Russell" and "Jones" are penciled in a column on the back of the requisition. The same notation is written on the face of the file copy of the inquiry in order to facilitate identification.

At the end of two or three days, the quotations come back from these firms. Quotations coming back from vendors are accompanied not only by prices, but conditions, such as delivery promises, shipping delay, payment terms and discount terms.

In this manner, the figures from the various quotations are gathered together on the face of the copy of the inquiry, beside the name of the proper firms. These memoranda are set down briefly, so

INQUIRY FOR PRICE

INQUIRY NO._____ DATE_____

REQ'N NO._____

TO_____ Retain the Copy and Return this Sheet Promptly

_____

Please insert your prices and delivery for material specified below.

FOR DELIVERY TO_____ NO._____

MATERIAL PRICE

NOTE: YOUR QUOTATIONS TO HAVE CONSIDERATION MUST BE MADE ON THIS BLANK AND RETURNED SO AS TO BE IN OUR HANDS NOT LATER THAN_____

Deliver f.o.b._____(invariably make quotation delivered to division indicated)

Terms_____

IF UNABLE TO QUOTE, RETURN THIS SHEET WITH THE NOTATION "CANNOT QUOTE"

The right to accept or decline all, or part, is reserved No charge allowed for packages or cartage, unless established in quotation.

General Purchasing Agent

_____Will furnish the material mentioned as quoted hereto with only such variation from your specifications as indicated.

_____Will undertake to fill your order for above within_____days

Date_____(SIGN HERE)_____

FIGURE 3

This Form Serves Several Purposes

One copy of this inquiry for price, terms, delivery, and so forth, is sent to each firm that can furnish the desired goods. The form is legally correct in wording so that it can be used either as a means for returning quotations or as a contract.

that two or three days after the inquiries have been sent out, the file copy may look like this—

Squire.....$8.50 keg..15 days..fob NY.....30-2-10
Jones..... 9.00 keg.. 4 days..fob Hartford...30 net
Russell.....10.50 keg.. 2 days..fob Holyoke..30-20-10

Assuming that one of the bids is $8.50 per keg, this price is the lowest, and if there were plenty of time this would determine the firm from which to order. But consulting the requisition for the nails, it shows that the date when the nails are required for use by the mill is given as May 28th, only ten days after the date of requisition. But Squire's price of $8.50 is accompanied by a wide leeway in delivery; the 15 days he specified would bring the material in too late. Therefore, his quotation is not the best buy. The best buy in this case seems to be the second quotation, which is $9.00 a keg on a 4-day delivery.

How Inquiry Forms Aid Bidding and Purchasing

Four days is early enough for the purpose of this requisition. By past experience with Jones, it is known that he will keep his delivery promise. So the order is placed with him. A ring is put around his name on the little memorandum list to

DIVISION COPY
COPY OF ORDER

FROM

ORDER NO.

TO DATE

THE BELOW SPECIFIED MATERIAL WILL BE SHIPPED DIRECTLY

TO

DELIVERY F.O.B TERMS

WAYBILL WILL BE MADE DIRECT TO THE DIVISION INDICATED

DIVISION RECEIVING RECORD

Receiving Report No.	Quantity	Date	Item Number	Receiving Report No.	Quantity	Date	Item Number

FIGURE 4

Four Copies Do Four Jobs

Two copies of the purchase order go to the vendor. One is returned and serves as an acknowledgment of the order. Another shows the man who Requisitioned the goods that the order has been placed. And one copy stays in the office for reference.

indicate the firm to be ordered from. Then turning the original requisition up on end, a formal direction to order these goods from Jones, f.o.b Hartford, at the price specified—30 days cash—is written on the proper line.

A clerk types the order, gets it signed, and marks it; then writes on the face of the original requisition a memorandum, "Ordered May 19th."

Each Order is given the same serial number as that assigned to the original requisition from the foreman. The requisition from the shop is clipped to the office copy of the final order and they are filed together. When a query comes in from the foreman concerning requisition number 1899, all the information is found under that number.

Filing a requisition with the order has another advantage. When the material is delivered, if any question arises as to the suitability of the material for the purpose specified by the foreman, this question can be looked up immediately from the incoming order numbers, for the order has the requisition clipped to it. There it is found that the foreman himself specified the material and its purpose, in the proper spaces provided on the requisition, and there can be no misunderstanding.

It takes only a second to determine whether or not the foreman got what he specified; or whether he really wanted what he wrote down. Sometimes foremen do not actually require the quantity they indicate; this is usually checked up upon receipt of requisitions.

The Legal Aspect of Orders

The methods for handling all purchases are fitted to the bigger view required by the general purchasing agent in big dealings. Especially is this true with regard to the legal aspect. Legal dealings are annoying on a large purchase and need to be straightened out in advance. Legal trouble is most frequently due to misunderstandings; so are informal disputes over minor matters. Plain phrasing is as necessary in a purchase as in a deed of property. But it should also be a matter of routine.

To remove misunderstandings inside the organization as well as with the vendors, the best way is to have all terms identical in all the documents pertaining to one purchase.

The inquiry sent out to each seller is made in duplicate on a standard double sheet of tissue paper perforated in the fold at the top. When first made out in the purchasing office, carbon paper is slipped in between the two sheets, and the additional carbon copy is also taken for the company's own files. The double copy is sent complete to the prospective vendor, without being torn apart. The bidder can then reinsert a piece of carbon paper between the two leaves and type his price in the column at the right, which has been provided for the purpose. When the bidder signs the duplicate copy he tears off the top sheet and returns it as a bid. The other sheet he can retain as a copy for his own files.

An advantage of this system is that when the inquiry sheet is signed and returned to the purchasing department, it has by the act of signature become a formal bid, an offer to make a contract on the terms shown. All that is now necessary for the purchasing department to initiate the contract is for the general purchasing agent, who has authority to bind the company, to add his name to the document, or the copy of it, and drop it in the mail.

The wording of the combination inquiry and quotation sheet has been carefully worked out to make it also a legal contract when signed by the bidder and by the remaining party of the second part, the company's purchasing agent.

This second signature may be on another paper if it embodies the terms of the first paper. As a matter of fact, a signature of the buyer is on the formal order blank, sent as a result of the inquiry.

This blank is shown as Figure 4. The wording of every order is copied exactly from the quotation returned from the bidder. If he has made any changes they are incorporated in the order. Both parties therefore use either the original wording or the original wording with the vendor's purposeful and definite amendments. There is not much room for mistake as to what the company is buying or what the vendor is selling.

The delivery of the first instalment of an order constitutes final acceptance of an order by the vendor.

Method Obviates Misunderstandings

This series of three blanks—the requisition, the inquiry and the order, is a compact and speedy means of bridging the gap between the foreman or superintendent on the one hand and the outside market on the other.

Having the three documents as nearly identical in terms as possible straightens out legal kinks in advance; it precludes misunderstandings between buyer and seller. And, further, they take care of shipping instructions. At the bottom of the original requisition is a line introduced by the caption "deliver to." The foreman who fills out the requisition writes here the name of the department of his mill to which the material is to be delivered.

This information is carried through the inquiry to the order, where it serves as shipping instructions for the vendor. The division number is also set down and used later in distribution for accounting.

Checking Receipt of Goods

But, when such a method is used, the natural question is, when orders are to be delivered directly to the mills and storerooms, though they are ordered from a central purchasing department, how can receipt of them be followed up to make sure of receipt, correct inspection, and prompt payment in order to get the benefit of cash discounts? Here is the way that is taken care of:

Every order issued to a vendor is made in four copies. Two of these copies go to the vendor, one of them to be returned by him as an acknowledgment of the order. The third copy goes at once to the mill department which placed the original requisition and to which the material is to be delivered. It informs the superintendent or foreman that the material has been ordered, how it will arrive, and when it will arrive. This copy is kept on file at the mill against the arrival of the material.

The material clerk at the mill also matches it up with his initial copy of the requisition. It is easy to do this because the requisition and the order carry the same number.

The mill's copy of the order has columns at the foot for recording receipt of complete shipment or practical shipments of the material, as well as the arrival dates and the quantities.

Though the mill's copy of the order is to be kept on file by the mill, information of receipt of each partial shipment must be forwarded promptly to the central purchasing department so that invoices covering the partial shipments may be cleared for payment. The mill's material clerk accordingly makes out a receiving report at once for every shipment or partial shipment that comes to him. A copy of a receiving report is shown as Figure 5.

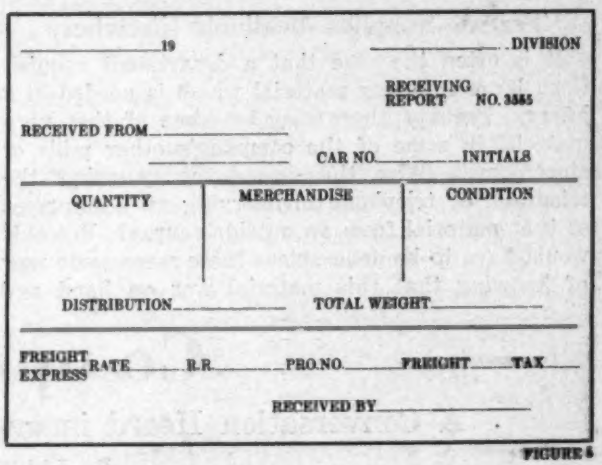


FIGURE 5

Checking Up on Shipments

The purchasing department handles the details of the contracts and orders but the various mills receive the shipments direct. So a receiving slip like this one is necessary for the mill to inform the purchasing office of the whole or partial shipments received.

This report is made in duplicate, one pink form and one white. The white one is retained on file at the plant and the pink one comes up in the next mill mail to the invoice audit divisions of the purchasing department.

This division of the purchasing department has meanwhile retained a fourth copy of the order filed in a current binder. This fourth or yellow copy is wider than the other copies, to allow for binding, but it is a carbon copy of the other three blanks of the set.

The invoice audit office now types on the back of its copy a memorandum of each invoice received covering shipments against that order, and, at the same time, this receiving report is matched against the invoice from the vendor, which should have come to the invoice audit office of the purchasing department while the shipment was on the way to the mill.

If the receiving record and invoice agree, the invoice is o.k.'d at once, and forwarded to the treasurer. In this way office work for the purchasing and receiving departments can be done economically in a central office adjacent to the office of the treasurer, who sends out the checks on the approval of invoices by the purchasing department.

The order on the vendor specifies that although the invoicing is to be made out direct to the mill,

the original bill-of-lading is to go to the general purchasing agent at the home administration office, together with invoices in duplicate.

This accomplishes the purpose of getting the material itself to the plant where it is to be used and of getting the documents to the office where they will be checked up and put through the office accounting processes.

Tracing Supplies Available Elsewhere

It is often the case that a department requisitions large company material which is needed in a hurry. Perhaps there may be some of that very material in some of the company's other mills or storerooms. Why then spend money using the telegraph or telephone in hurrying up a shipment of that material from an outside source? But this would have to be done unless there were some way of knowing that this material was on hand and immediately finding its exact quantity and location.

Therefore, the company's central purchasing department keeps a record of each kind of supplies and material on hand in all of the mills. This list is, by classes of material, arranged alphabetically under the names of the materials. Under each material a list of the quantity on hand at each mill or storeroom is shown, together with the rate of probable consumption by that mill. These lists are kept in binders accessible to anyone in the purchasing department. When a rush requisition comes in, after making sure that it is really a case of rush, the buyer who receives it finds from these books from which plant or storeroom the supplies may be most conveniently borrowed without interfering with the operations of that plant. Then a transfer order is made out and one of the company trucks under the jurisdiction of the purchasing department is sent to effect the transfer.

Co-operation

A Conversation Heard in an American Pulp and Paper Mill

By JAMES JAYNES

"HELLO, Jim."

"Hello, Bill. How are you today!"

"I'm feeling fine. Are you ready to eat your lunch? I have some news to tell you."

"Yes, I'm ready to eat; what's the news?"

"You will laugh when I tell you. The master mechanic 'blew up' this morning and tried to have a row with the employment manager."

"That sounds interesting; what was the fuss about?"

"It seems that the employment manager wanted to transfer young Jack Allen who was working in the labor crew. He has had his eye on Jack ever since he came to work in the mill, just after graduating from high school, last June. This morning they needed a man on the news machine in the paper mill as a spare hand. Well, the employment manager asked the master mechanic if he would be willing to transfer Jack from his labor crew. Evidently the M. M. must have got out of bed on the wrong side this morning for he went up like a 'balloon'. He told the employment man where to get off and that he was not going to have his department disorganized, by having all of his men transferred, just as soon as he had gotten it organized. No sir, he was not going to transfer Jack Allen.

"The employment manager laughed at him, then told him that he had been organizing for over five years that he knew of, that he surely must have some swell organization if the promotion of one of his laborers would disrupt it. That he had not promoted a man in six months. He told the master mechanic a plenty, then walked off.

"The M. M. just stood and sizzled, he was so mad. Some of his men had happened to overhear the conversation, and told me about it. Shortly after that, I saw the employment manager taking a fellow from the wood yard into the paper mill. I am sorry that Jack missed the opportunity to get on the machines as he has been working with that in view for some time.

"What do you think of two bosses having a row over the promotion of a man? Some co-operation, I should say."

"I would say that it was mighty poor co-operation on the part of the master mechanic, Bill."

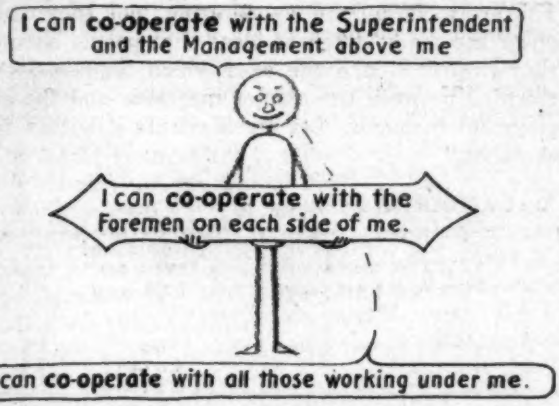
"You're right, Jim, it was darn poor co-operation. I think the worst thing about the whole affair is the effect it will have upon the M. M. department. Every last man knows about it by this time. Refusing to promote a bright young man like Jack Allen, who has been working hard for promotion, will surely do more harm than losing him would have done. It will have the tendency to break down the morale of the workers."

"I think it was a very selfish thing for him to do. That is just the way with some bosses, only thinking of themselves and their own gains and not much about their men.

"I read a good article on **Co-operation** the other day, Bill. It made things come to my mind that I had never thought before. The M. M. ought to read it, I'm sure it would do him good.

"The author explained that to have perfect **Co-operation** we must co-operate with every one, not with just a few, as a great many do. He explained that a foreman could co-operate on all four sides,

like this; let me draw a sketch like he had in the article—


I can co-operate with the Superintendent and the Management above me
I can co-operate with the Foremen on each side of me.
I can co-operate with all those working under me.

"To have perfect **co-operation,** not only must I co-operate with them but they in turn must **co-operate** with me. Co-operation must not be one-sided."

"That makes me think, Jim. If you were a foreman, what are some of the things you would do to co-operate with the different ones you have sketched there? Let's start with the superintendents and management. Write them down so we won't forget them. Then opposite it put down the results from doing it."

I can co-operate with the superintendents and the management by—

1—Obeying their orders.
If I do co-operate, the result would most likely be—
1—*Setting a good example for the men under me to obey my orders.*

2—Properly supervising my work.
2—*Getting a better quality and quantity of production.*

3—Planning my work ahead of time.
3—*Making my job easier for me and my workers.*

4—Keeping down costs.
4—*The boss would appreciate my services a great deal more.*

5—Co-operating with other foremen.
5—*They would co-operate with me.*

6—Preventing accidents.
6—*A great saving in time and money, as well as suffering for the victims.*

7—Not passing the "buck".
7—*I would have the respect of all.*

8—Keeping my promises.
8—*I would cause no delays and they would recognize my ability.*

"Let's look at the other side of the question and see what the superintendents and management can do to **Co-operate** with you."

The management and superintendent can co-operate with the foremen by—

1—Keeping machinery in good repair.
If they do co-operate as listed the result would most likely be—
1—*Greater production of a better quality.*

2—Giving me as much time as possible before making a change.
2—*Preventing considerable waste.*

3—Being reasonable.
3—*Better spirit among foremen and workers.*

4—Having confidence in their ability.
4—*More interested in their work.*

5—Be willing to meet them more than half way.
5—*Willingness to go 9/10's of the way.*

6—Backing them up.
6—*They would work much harder.*

7—Not interfering with the workers.
7—*Prevent confusion.*

8—Being willing to accept good suggestions.
8—*Those making the suggestions would be more interested.*

"Now make a list of some of the ways you could co-operate with the foremen on both sides of you."

I would co-operate with the foremen by—

1—Plan my work so as to help them.
If I do co-operate with the foremen, the results would most likely be—
1—*They would help me.*

2—Talking things over with them.
2—*He would talk things over with me.*

3—Being willing to listen to his suggestions.
3—*He would listen to mine.*

4—Helping him when he needs help.
4—*He would help me.*

5—Not "knocking" him.
5—*He would like me better.*

6—Giving him a word of encouragement when needed.
6—*He would appreciate real friendship.*

7—Notifying him if the quality of the stock is not just right.
7—*He would be better able to do good work.*

8—Living up to my promises.
8—*He would have confidence in me.*

"The other side of this question would look something like this:"

The other foremen could co-operate with me by—

1—Keeping me informed as to how the stock is.
The result, if they did, would most likely be—
1—*I could plan my work better.*

2—Not jamming the stock through on me.
2—*We would all get better production.*

3—Not trying to boss the men in my department.
3—*We would have considerable less trouble.*

4—Being willing to take his share of the blame when things go wrong.
4—*I would appreciate his help in this matter.*

5—Not passing the "buck".
5—*I would have more confidence in him.*

6—Being reasonable.
6—*Things would go smoother.*

7—Notifying me in case of a breakdown.
7—*It would prevent waste of material and time.*

"Next we have **Co-operation with the Men Under Us.** Jim, have you ever stopped to think of the great difference in the attitude of the various bosses right here in this mill on that one point? There are some that think they do not have to do any of

the co-operating; nevertheless, they expect the men to do it. You can easily tell by the attitude of the workers while on the job whether their foreman is **co-operating with the men under him.** When you find a department where the workers are going after their work as if they had the best and most important jobs in the mill, you can rest assured that they are getting **co-operation from their foreman.** Let's make a list of the things I would do if I was a foreman."

If I was a foreman, I would co-operate with the men under me by—

1—Giving them a square deal.
If I did, the result most likely would be——
1—They would be more interested in their work.

2—Being a leader not a driver.
2—They would be more interested in their work.

3—Taking a personal interest in them.
3—They would like to work for me.

4—Making working conditions safe for them.
4—Fewer accidents and less suffering by their families.

5—Being cheerful; it is contagious.
5—It would reflect in them and their work.

6—Appreciating their good work.
6—They would do more work.

7—Properly teaching them their jobs.
7—Great saving in materials, stock and time.

8—Assuming the responsibility when they make an honest mistake.
8—Win their respect and they would try harder to not make them.

9—Keeping the department in a sanitary condition.
9—There would be less sickness.

10—Giving correct orders.
10—Fewer mistakes would be made.

"Bill, do you think that the workers have a responsibility in **co-operating with the foremen?**"

"I surely do, Jim. It is to their advantage to co-operate if they but realize it. They have the most to gain if they do."

"All right, if you were a foreman, how would you want the workers to co-operate with you?"

If I was a foreman, I would like to have the workers co-operate with me by—

1—Doing their work properly.
If they did, the result would most likely be—
1—Earn more money.

2—Obeying orders.
2—Fewer mistakes would be made.

3—Working full time.
3—Much easier on their buddies.

4—Not wasting material.
4—Keep down costs.

5—Thinking about their jobs.
5—They would advance much faster.

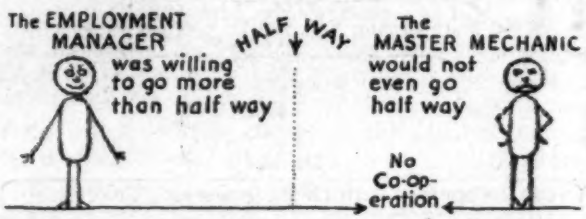
6—Returning borrowed tools.
6—Save considerable expense.

7—Not taking any risks of being injured.
7—Less suffering for themselves and families.

8—Keeping their department or room clean.
8—Produce a better quality of product.

9—Being willing to work overtime when necessary.
9—I would appreciate his co-operation.

"**Co-operation** does not always mean the same thing to different people. To some it means doing as they want done but never doing as you want done. You are to do all the co-operating; not they. It is queer the many different ideas that people have on that subject. Take the case which happened this morning between the master mechanic and the employment manager. Let me illustrate it with a few sketches."


The EMPLOYMENT MANAGER
was willing to go more than half way
HALF WAY
The MASTER MECHANIC
would not even go half way
No Co-operation

"That sketch shows how that scrap looks to me, I firmly believe that the master mechanic does not realize that he is not co-operating, but rather that he is the one who is doing all the co-operating and the employment manager is not doing any at all. We also have another group of people as illustrated in the sketch below.

"Each one is willing to go half way **but no further.** Therefore, there is no **co-operation.** We have any number of men of this type in our mill. Real **co-operation does not commence until you have passed the other fellow, by going more than half way.**

"When two foremen of this type start working together, something is going to happen; things are going to move. The workers get the same spirit and you can rest assured they find it a whole lot pleasanter to work under such conditions.

"Bill, I want to ask you a question, **is co-operation something which a company pays for and expects when it hires a man, or, is it something which a man gives?**"

"It's time to get to work, Jim, I will try to answer that question tomorrow."

No matter in what direction we look, whether industrial or social, we find the chemist busy working for a better tomorrow.—Business Chemistry.

Cost Accounting in the Paper Industry

Part IX—Application of Standards

By D. A. WILCOX
Oxford Paper Company, New York

HAVING considered the theory of standards we now approach the most interesting phase of cost accounting, the practical application of standards. In previous articles we have endeavored to give readers an understanding of the underlying principles, because to be able to get the full benefits of a modern cost system such an understanding is essential, the results obtained being at the same time well worth the effort. To present facts truly and focus attention on points needing consideration, and to interpret conditions accurately, often means an abandonment of preconceived ideas. To do this wholeheartedly, one must have a full knowledge of actuating reasons.

Queries and Answers

In order to encourage discussion on the subject of cost accounting in the paper industry, the author of this series of articles is prepared to answer to the best of his ability any queries on cost accounting that may be directed to him.

Use of Cost Accounting

The full benefits of cost accounting can be realized only when it becomes a complete whole and not only tells us the cost of our product, but aids in securing greater efficiency in current operations, as well as enabling us to plan ahead for best results. Its greatest value may be said to consist in directing operations toward a definite goal and making sure that they do not stray from the path mapped out.

The Budget

All of us make plans to some extent, few persons being content merely to drift along from day to day taking things as they come. As a general thing, our plans are unstudied and nebulous. Little or no effort is made to see that they actually work out in practice, and herein lies some of the value of a budget. For a budget is a systematic, detailed, formal plan laid down for the conduct of a business; it is an aim to direct the conduct of the organization along definite channels considered to be best for the promotion of greatest profits.

In order to make sure that operations are actually proceeding as outlined, the actual results are compared with the budget and deviations reckoned with. This is done, not as a matter of interest to see how good a guess was made, but because careful considerations showed that the budget was the best way to proceed. Deviations being harmful, they are not to be allowed if it is possible to avoid them. A true budget is carefully thought out, embodies the labor of the best brains in the organization and, barring unexpected developments, outlines the most correct procedure.

How Budget Is Made Up

In order that the advantages of a budget may be better understood, a brief description of its formation and operation will now be given. Starting with the expected sales for a period in advance—usually about six months in the paper industry—a production schedule is laid out, month by month, for each month of the period. Using these schedules as a base, each person holding a responsible position is called upon to submit estimates of expenses, productions, etc., for his share. The requirements for wood, pulps, power, coal and all raw materials are outlined. From the purchasing department, estimates are obtained as to probable cash requirements. The accounting department takes the estimates of cash receipts (from the proposed sales), the cash outlay, etc., and works out the probable profit and loss for each month, together with estimated balance sheets and submits them.

This forms what might be termed the "tentative budget". With this in hand, the executives see how affairs are likely to shape up in the near future. Undoubtedly weak points will be developed, with possibilities of retrenchment here and reduced costs there. Proceeding step by step, the executives evolve a final budget, bolstering up this department, pruning that one, and so on until a final plan is reached which will represent the manner in which each and every phase of the business ought to be conducted in order to secure desired results. In this way, all branches are designed to work in unison for the best interests of the whole and they must all play ball together.

Working the Budget

Having done this, the entire aim of the organization should now be to follow this plan. As it embodies the best methods conceivable, it should be faithfully adhered to. It is the duty of some one (termed the "Budgetary Officer" hereafter) to see that all concerned do follow in the straight and narrow path. For this reason, the budgetary officer must check current operations to see how well they are in line, and he must call all stragglers sharply to account.

It is inconceivable that any plan can be so perfect as to take into consideration all future contingencies so that nothing unexpected can develop. Hence the budget period should not be too long and

the budget itself should be subject to change. Usually the best way is to lay down a general plan for a fairly long period, six months to a year, and detailed plans (fitting into the general plan) for shorter periods. Even with this, the budget should be sufficiently elastic to permit of rapid changes when required. **In all cases the budget should be considered as a tool of management, not a straight-jacket.**

Advantages of a Budget

The budget is one of the most useful tools available to management. Most troubles are troubles because they are unexpected. Did we know them in advance we might take steps to avoid them in some form or another, and if not entirely anticipated, their effects could be minimized to some extent. It is the element of surprise that causes trouble—remove the surprise and the trouble vanishes. "Forewarned is forearmed" is an old saying and a true one.

The first advantage of a budget lies in showing up what is likely to occur. This is forewarning. No one can overestimate the advantage of being able to see ahead.

Probably the next greatest value is psychological. It requires all responsible persons to submit estimates of their future operations. This makes them think about their jobs and take an active interest in future operations. It is only human nature that once having made an estimate a person will be interested, both to prove that he was a good guesser and to make his operations come within a reasonable degree of his estimate. It promotes thinking by subordinates as well as interest in their future work.

The planning of estimates promotes team work throughout the organization. No longer can individual departments run "hog-wild". A consideration of the tentative budget inevitable brings out "bottlenecks" which hold up other departments and "soft-spots" which consume a disproportionate part of the company's income without giving adequate returns. All these are considered in the final budget and efforts made to bring them into line so that they will work toward a common end.

By scheduling sales, a production program may be laid out which will iron out the peaks and slumps. The production department will know what to prepare for, and when they can safely run and store, and when they must shut down. The purchasing department knows the production schedule and hence can plan purchases and deliveries. This enables them to buy to best advantage and to schedule deliveries so as to hold inventories to a minimum.

Numerous other advantages can be cited and will be apparent; the treasury department can plan cash requirements; the advertising department knows when and where to throw a barrage of advertising to bolster up the sales schedule; the sales department has definite quotas on which to work, and so on throughout the entire organization.

Budget Hazards

The greatest danger of a budget lies in the possibility of its being ill-considered and ill-balanced. It is essentially a case of **festina lente**—of making haste slowly. Half-baked plans based on sufficient information which are then adhered to rigidly may cause endless trouble.

It was said that the budget should not be a straight-jacket for the business. Efforts to force the conduct of the business along given lines, without regard to other things might be disastrous.

If a budget plan is entered into too hastily and before the idea is thoroughly explained to all concerned it may cause friction, and instead of promoting team work may cause hard feeling and "bucking". If too complicated at first it may bring about red tape and bureaucracy.

A budget need not wait for years to develop to be of use. It functions right from the start and, no matter how small its start is of value at once. Insofar as any degree of foresightedness is of advantage, so even a limited start is of value. The danger lies, not in starting small, but in attempting to start on too large a scale.

Requirements of a Budget

The requirements of a budget are simple but essential to its operation. The prime need is a well developed organization. The budget aims to control operations and hold people to their responsibilities, which cannot be done unless the responsibilities are well defined and definite. If responsibilities are overlapping and indefinite, how is it possible to form a budget to direct operations?

For a budget, a background of facts is necessary on which to base predictions. No cost accountant, budgetary officer or other executive is possessed of second sight or a divining crystal into which to gaze and read the future. There is only one way by which he can foresee future conditions, and that is the principle of cause and effect. He knows that given certain conditions certain results will probably occur. To know the results of conditions he must reply on what has happened under similar conditions in the past. Knowing these and relying on the law of averages, or whatever you wish to call it, he believes that under similar conditions in the future like results will flow. Thus he considers the conditions surrounding his business and figures out from his past experience what is likely to happen in the future.

It is not easy to determine the cause of a certain effect and this is especially true if two or more causes contributed to produce the effect. The only way to foresee the results of conditions is to know all the causes and the relative parts they played in producing effects in the past.

Detailed knowledge of what has occurred in the past and the resulting effects is essential to reasonable predictions about the future.

A budget must be "sold" to the organization and all must take part in its formation. They must see it as a means of promoting the best interests of the organization and understand its operation or they are apt to fight it. Not appreciating is aim they are likely to regard it as just so much more red-tape.

This does not mean that all action on a budget must be deferred until everyone is in hearty agreement. Not only is this too much to hope for, but undoubtedly the budget will step on some peoples' pet corns. They may disagree with the budget but they should understand its aims and general procedure. As everyone holding a responsible position is concerned with the budget and must contribute to its formation in the way of their estimates, this means that it should be explained to all executives in the company, from the lowest foreman up where it affects their work.

A budget requires an organization to run it. It is not self-sustaining, but needs to be continually followed up to see that current operations are in line and to revise it when necessary.

Much has been said and written about the value of reports that are "hot off the griddle" and the comparative worthlessness of "ancient history" and "water that has flown under the bridge". Some of this is true and much is bunk. Without a proper historical background, properly analyzed into cause and effect, nothing intelligent can be done about forecasting the future and preparing a budget.

As before mentioned, forecasting does not work on any principle of alchemy, astrology or magic—hunches may be useful, but are not reliable. It works on the principle of connecting present conditions with the probable results, based on an accurate knowledge of what has occurred in the past under similar conditions.

It is a prime function of the cost accountant to compile ancient history, so tabulated and analyzed, that it may be used as a basis of predicting future probabilities.

The Budget Organization

We shall now consider the actual make-up of the budgetary department. What officer shall have charge of the budget, make it out and follow it up? This differs in many companies. Sometimes it is "wished on" some official already there in addition to his present duties; sometimes one of them gets the idea and sells it to the others and naturally follows it through himself; sometimes it is considered a normal function of the treasury department and sometimes an officer is either hired or designated to devote himself exclusively to it. Much, of course, depends upon the size of the company and the amount of work involved. Usually there is a committee of all the higher executives to aid by discussion of the tentative budget and to whip it into shape as a final budget.

Consider for a moment what the duties of the budgetary officer are: He first receives from the salesmanager his estimate of sales. Usually these are, to say the least, optimistic. He must scale them down to the probable, and to do this must have a considerable knowledge of business conditions, economics and the industry—a big and profound job in itself. He must then see that all parts are transmitted in proper order to the various departments and their estimates returned. All this means considerable following up. He must finally weld the whole together to make a connected picture. He then prepares the tentative budget, having used his own judgment to iron out the many apparent defects he can see himself, and submits it to the budget committee together with his report. They proceed to tear it to pieces and he has to build it up again and resubmit it, repeating the process till finally adopted.

Now he has to follow it through and call to account all those getting out of line and here he needs all the strength and prestige he may be master of. Naturally he cannot be running to the president all the time and must do a lot of calling to account himself. In this, he must be perfectly "hard-boiled" and must be able to criticize any and all from the first vice-president to the toughest mill manager.

It is a man-sized job and he must be a "big boy" in every sense of the word. In view of the above and the fact that the budget touches all phases of the business, even that of the treasury department, it would seem best that he be in a perfectly independent position, with the title of Assistant to the President. This is the situation as regards our greatest business —the government of the United States itself.

Budgetary Period

The budgetary period differs widely in various industries depending upon how far in advance it is possible to see ahead. Some can only budget for a month in advance while others stretch over years. In a business based on styles or a novelty the period is very short, as in the apparel industry, whereas public utilities, such as gas, electric and telephone companies, may safely budget ten or more years ahead.

The United States Rubber Company, as an example, work as follows: They lay down a general plan some months in advance, then a tentative budget three months ahead and a final detailed budget one month ahead. Each month this is done and the tentative budget for the three-month period revised and the final budget for one month definitely adopted.

The paper industry is essentially a cyclical industry and follows general business conditions very closely. Hence it is not apt to be affected by sudden changes; at the same time it does not possess the great stability of the public utilities. The best method is to lay out a general plan a year in advance, a tentative budget for six months and a final

budget for three or four months. In many cases a final budget can be made for a six-month period. These should be kept strictly up to date and subject to change on short notice, if necessary.

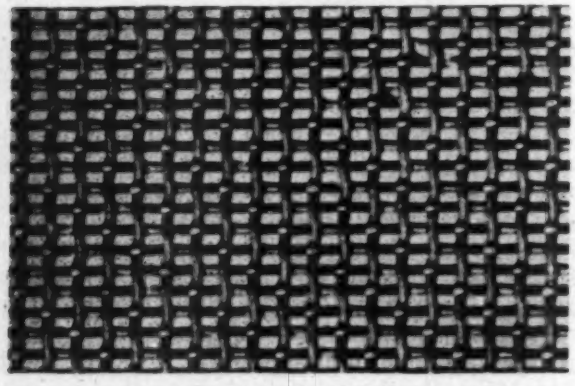
In our next article we shall take up the actual formation and operation of a budget in some detail, but owing to space limitations we shall not consider it exhaustively.

How Long Is Your Wire?

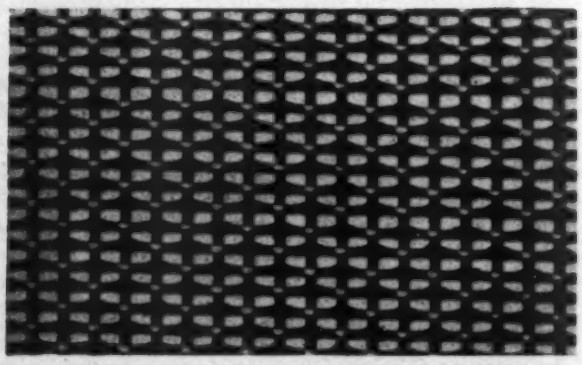
By PETER SMITH

SOME paper manufacturers are under the impression that in order to run a machine fast, the wire must be long. It must be long enough to mold a sheet plus a small amount for suction boxes.

Two different wires are illustrated herewith. No. 1 wire 75 feet long, breast roll raised 16



Wire No. 1



Wire No. 2

inches, 21 tube rolls, 20 feet of save-all, ran 50 days at 1015 feet per minute. No. 2 horizontal wire, 100 feet long, 38 tube rolls, 2½ feet of save-all, ran 17 days at 980 feet per minute. Reference to the illustrations will show that there is great damage done to a wire by not having save-alls to catch the water, as this causes an extra load or pull on the wire, which means that the wire has to be carried tighter. From the photograph of No. 2 wire, one may observe the effects of the water striking the wire, as the material is thin compared to No. 1.

If a wire is long enough, say 25 feet from slice to first suction box, the breast roll elevated and the tube rolls spaced properly, the machine can run 1100 feet, as I have seen it done. If the wire is too long and the tube rolls not properly spaced, the sheet will not be formed right and will be soft, whereas if the wire is the proper length, a better and stronger sheet is the result.

There are many disadvantages when the wire is long and too many tube rolls. If the tube rolls are too close together, the water strikes between the rolls and holds the rolls back, cutting them full of ridges, which takes power. Also if the deckle strap is holding the wire down on the rolls that are not going as fast as the wire, the result is that the wire wears thin and there is an extra strain which causes the wire to crack on the edges. In the case of No. 1 wire, it is never changed as a result of this condition. The point I want to make is that a 75 foot wire with say 25 feet of molding surface will outlast a 100 foot wire with 37 feet of molding surface.

Checking Total Costs of Power Plant

By WARREN D. SPENGLER

IN the case of a plant manufacturing only one product, it is easy to obtain information as to comparative costs from one month to one year to the following periods, as the total cost of running the power house can be divided by the production and the cost per unit readily obtained. Most plants, however, have more than one kind of product so the answer is not so readily found. Some companies find it worth while to meter all power service to each department and get correct costs of production. Even this, however, does not always go far enough to give a comparative figure that is easily seen.

One rough check that will give a good idea of total power operations is to set up a flat rate for each department based on observed costs, or if this is not possible, based on estimated cost per unit on each department. The production on each department multiplied by its flat rate and all department totals together give the figure of what the cost would be on this basis. If this is compared with the actual cost, the figure above or below the flat rate can be watched each month and fairly close information as to the trend of power costs can be obtained. This method has an advantage in that it requires the collecting of no information except total cost of power and quantity of goods produced. It will not, however, show up wastes in various departments. Even where power service is all metered and correctly charged this method has a value in that it gives one figure for comparison instead of several. The responsibility for increase in costs would not be fixed, however, as waste might be either on power production or consumption.

Roof Construction for Paper Mills

By N. S. PERKINS, C. E.
Construction Engineer, on Staff of National Manufacturers Association

Wooden paper mill roofs, if not intelligently designed and constructed, are particularly likely to rot in a few years. To avoid this, other and more expensive materials are frequently used. Wood is a good insulator and it is practical and economical to put a wood roof on a paper mill that will last for a long time. How this may be done is described in the accompanying article.

R. S. KELLOGG, Secretary
News Print Service Bureau

FOR many years paper mills have experienced certain difficulties with their roof construction, particularly that part of the roof over the machine room. In this room, steamheated drums are used to dry the paper. As a result, the air in the room is likely to become warm and extremely moist. As this moist air rises to the top of the room and comes in contact with the roof, its temperature falls in proportion to that of the underside of the roof structure. When the air has been cooled to a temperature below its dew point, part of the moisture in it is condensed, usually gathering on trusses, purlins, or the roof material. A small drop in temperature is usually sufficient to cause this condensation.

In cold weather, the underside of the roof may be cool enough to cause condensation. In more moderate weather, condensation may be absent on the under surface of the roof, but the moist, warm air may penetrate between the roof planks or strips and reach a cool zone of condensation within the roof itself, either at the tongue and groove or splined connection between planks or else at the upper surface of the roof boards, underneath the finish roofing. Wherever such condensation occurs, it provides a constant source of water supply for fungus or decay growth, and as the other two requisites for decay are present, i. e., warmth and air, it is not surprising that many roofs of untreated wood have developed rot. A survey conducted by the Canadian Forest Products Laboratory about ten years ago showed that the average life of a paper mill roof, except where proper precautions had been taken against decay, was from eight to ten years.

Under ideal conditions the machine room of a paper mill presumably would be so ventilated that moisture-saturated air would be removed before it came into contact with the roof, also the mill might be adequately heated so that the undersurface of the roof would be well above ordinary condensation temperatures. Unfortunately, ventilation systems do not always perform up to their theoretical capacities, and extremes of cold weather sometimes defeat the best designed heating plants. The builder of a paper mill must look forward to a certain amount of condensation incident to the occupancy and must provide against it.

Various types of roof construction have been tried to prevent condensation. Many of these attempts have failed and in every instance the failure can be traced to the same bad feature; namely, the entrance of moist air into the spaces between planks, through which it finally reaches a cool zone at or near the upper side of the roof, and deposits moisture.

Roof boards and planks of varying thicknesses up to 5 inches have been used in some instances. Other builders have employed a laminated type of roofing, spiking 2-in. x 3-in. or even 2-in. x 6-in. planks together on edge. Sheathing has been added in some cases, both with and without an air space between the roof boards and the sheathing. Then experiments have been made with tongued and grooved roofing, with splined plank and also with square edged boards. Yet in each different type of roof construction, some failures have been experienced. None of these variations entirely avoids the difficulties already mentioned.

But these difficulties can be eliminated, and apparently in quite a simple fashion. First, if a permanently waterproof layer is installed near the undersurface of the roof structure, moisture cannot penetrate beyond this barrier. Next, if sufficient insulating materials (and 2-in. or 3-in. of wood is excellent for this purpose) is placed on top so that any moist air in contact with the underside of the waterproofing cannot be cooled to a condensation point, the problem is solved.

A type of roof construction which has been found effective is shown in Figure 1. This roof construction will be seen to consist of four layers. Looking

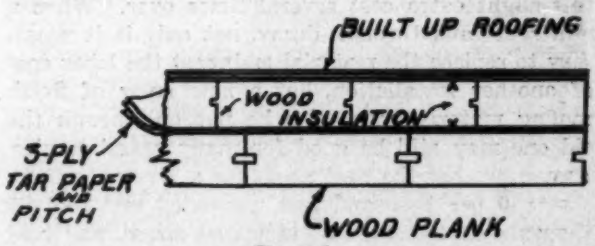


Figure 1

from the inside outward, there is a lumber ceiling of strips or boards followed by one of waterproof material. Over this is placed the insulation necessary to prevent the underside of the roof from cooling off to a condensation temperature, and, finally, the built-up weatherproofed roofing with which any good industrial building should be protected. These will be discussed briefly in order.

Wood Ceiling

This is the layer which carries the weight of the roof material under any wind loads, snow loads and any other added weight which may be imposed. If the roof is supported by trusses, the roof plank will usually be laid over purlins. Sometimes short trusses or beam supports are spaced sufficiently close to dispense with purlins. In such cases a 1⅝-in. (2-in. nominal) Southern pine or Douglas fir plank will permit of 8-ft.-9-in. span between supports, and a 2⅝-in. plank is good for 13-ft.-8-in. using only a 1200 pound fiber stress. It should be remembered in this connection that while the wood insulation making up the third layer is not primarily for load supporting purposes, it does contribute very materially to the strength of the roof structure.

With proper construction for the remainder of the roof, there should be no condensation in this lower layer of boards or planks. Nevertheless, it is undoubtedly sound practice to use treated lumber for this undersurface. Zinc chloride, which is being used in a number of mills, is excellently suited for the purpose. It is toxic to all decay germs or fungus growths as well as insects. Moreover, it is colorless and can be painted white or any other shade desired. Wood treated with this salt in accordance with specifications of the American Wood Preservers' Association should last for many years, as long as the building itself, in fact. The cost is reasonable for this type of treatment, usually ranging from $15 to $20 per thousand board feet in addition to the cost of the lumber.

Some of the extra cost thus involved is offset by the fact that a cheaper grade of lumber containing a large percentage of sapwood can be substituted for the heartwood which is particularly desirable in untreated material. Sapwood as a rule lends itself much more readily than heartwood to preservative treatment and can often be purchased for less.

Over a long period, the extra life obtained by treating the lumber with a preservative will repay this slight extra cost several times over. When a mill roof fails through decay, not only is it necessary to replace the material and meet the labor cost of another installation, but a new layer of finish roofing material must also be put on, though the old one may still be good for many years' service. Assuming that the roof plank for a given structure cost $40 per thousand feet untreated and $55 per thousand feet treated as indicated above, and that a substantially equal labor cost of $15 per thousand for installation is involved in either case, the additional cost of the treated roof material will be only 27 per cent. This does not take account of the waterproof layer or the finish roofing.

If the life of untreated roof plank is taken as 10 years, and that of treated lumber is taken even as low as 20 years, a large saving in annual cost may be effected by using treated material.

For example, assume a roof area of 20,000 square feet, with first a 1⅝-in. untreated lumber roof, and with a waterproof layer of tar paper and pitch, 2 inches of wood insulation (untreated) and a 5-ply built-up roof.

Untreated

Roof plank—45 M bd. ft. @ $55.	—	$ 2,475.
Waterproof layer—200 sqs. @ 4.	—	800.
Wood insulation—45 bd. ft. @ 55.	—	2,475.
5-ply roofing—200 sqs. @ 7.	—	1,400.
Total Cost		$ 7,150.

Annual Charges
10 year period

Interest—$7,150. @ 6%	$ 429.	
Amortization cost per year. @ 4%	650.	
Annual Cost	$1,079. x 10 =	$10,790. for 10 yrs.
Removal of old roof		2,000.*
		$12,790. or $1,279. a year.

Treated

45 M bd. ft. @ $70.	—	$3,150.
Waterproof layer	—	800.
Wood insulation 45 M bd. ft. @ $55.	—	2,475.
5-ply roofing	—	1,400.
Total Cost		$7,825.

Annual Charges
20 year period

Interest $7,825. @ 6%	—	$469.50
Amortization charge each year — (4%)	—	263.00
	$732.50 x 20 =	$14,650. for 20 years.
		2,000.*
		$16,650. or $832.50 a year

* Includes cost of interruption to manufacturing process.

This shows a saving each year, disregarding maintenance, of over $400, or more than 35 per cent, by using treated planks for the roof.

Waterproof Layer

Several commercial preparations are available for the impervious layer which must prevent any moisture in the air from passing to the upper and cooler side of the roof. Three sheets of tar paper, well mopped with pitch may be used.

Insulation

The insulating material should be chosen after consideration of its insulating properties, its cost, and its rigidity so that the top roofing will have a firm unyielding base. Otherwise, occasional walking over the roof will be apt to cause depressions or cracking.

Wood is particularly suitable for this insulating course, if the lighter species are used. Its cost is low compared to that of the so-called insulating boards, and lumber presents a firm base for the final roofing. Moreover, and this is of more than

merely casual significance, treated wood is not damaged by leaks in the finished roofing. Such leaks should not occur but they are not unknown just the same. Many of the materials which are good only as insulators, lose their insulating values if wetted and the result is worse than if no insulation had been used. Wood, if it has been treated, will not be seriously affected by water leaking on to it, nor will its insulating properties be greatly impaired.

Wood is a natural insulating material, and is, in fact, a far better one than commonly realized. In the past, the rate of heat loss through wood has been taken as 1.00 per inch thickness, in comparison to that of various wall boards, etc., which are from 0.33 up to 0.40 for a 1-inch thickness or about 0.75 for 7/16-in. stock of commercial thickness. A series of recent experiments not yet complete, indicate that, although 1.00 is correct for the conductivity of dense, heavy structure woods, it is far too high for the lighter woods. This is quite logical. Lighter woods are lighter because they have less wood structure and more or larger air cells. It has been found that .70 is a fair figure for the conductivity of light weight woods, .80 for medium weight, and 1.00 for heavy. One inch of wood, therefore, is about as effective as the usual 7/16-in. commercial thickness of so-called insulating board, the former having a heat resistance of 1.43 while the latter has about 1.33 to 1.47. It is true that a nominal inch of wood has an actual thickness commercially of only 25/32-in. or, in the case of 2-in., the commercial thickness is 1⅝ inches. As these thicknesses are increased, however, the addition amounts to a full inch of wood, 3-in. nominal being 2⅝-in. thick, and 4-in. plank being 3⅝-in. thick.

The thickness of wood insulation to be used over the waterproof layer will depend on the expected normal temperature and moisture conditions in the machine room, the local climatic conditions and temperature extremes. Condensation is much more easily prevented when the outside temperature is 30° or more than when it drops to zero. A competent heating and ventilating engineer should be consulted before decision is made. The following three examples illustrate the thicknesses necessary under a wide range of conditions:

(Based on 1/6-in. thickness of built-up roof, heat resistance = 0.4).

Room Temperature	Minimum Outside Temp.	Inside Humidity	Thickness of wood insulation needed under built-up roof to prevent condensation.
80° Fahr.	20° Fahr.	70 per cent	2 ⅝-inch
70° "	10° "	50 "	1 ⅛ "
70° "	-10° "	70 "	3 ⅝ "
70° "	-10° "	50 "	1 ⅝ "

Roofing

The final roofing is a matter of choice and price. A number of good built-up roofings are on the market. They must be laid carefully and be permanently waterproof.

Repairs

The general scheme of construction previously described has been applied in repairing roofs in which decay has started. Over the old roof is placed a layer of waterproofing. Furring strips (1-in. square, nominal dimension) are placed at intervals on this waterproofing and a new treated wood roof laid over the furring. This aims at removing water supply from the decay in the old roof, and so checking further deterioration.

Another remedy has been used where the rafters or truss members supporting the roof planks have

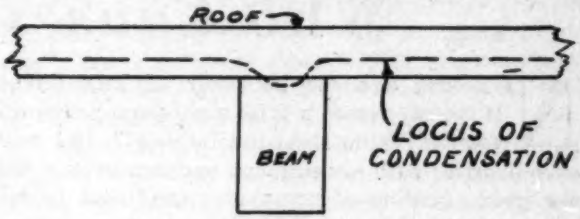


Figure 2

shown signs of decay. Decay in these members means that the locus of condensation has come down out of the plank into the purlin (See Fig. 2). By chamfering the supporting members as shown in Fig. 3, the locus is raised again. Inserting a strip

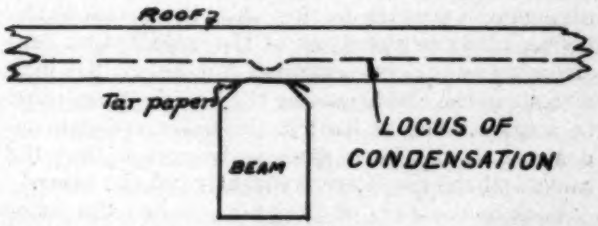


Figure 3

of waterproof paper as indicated serves also to keep the tops of the beams dry.

General

Paper mill roofs in general should have a flat pitch, for then the under surface can best be heated uniformly. Also a flat roof takes less material in construction and offers a smaller surface for heat losses than a steeply pitched roof. The use of purlins between trusses to support the roof deck is not satisfactory for paper mills. It presents additional surface for condensation and makes it more difficult to carry warm moist air away from the ceiling.

In saw-tooth roofs there is a tendency for the valley planks to decay first. This tendency, which can be prevented by the use of treated lumber, is due to the shaded, cool location of the valley and the quicker condensation underneath as a result. Also, moisture naturally drains into these valleys to encourage decay unless preserved lumber has been used.

Current Thought by William Sibley

Who *Causes* The Buying?

NOT long ago the publisher of THE PAPER INDUSTRY issued a little eight-page pamphlet entitled "Who Does the Buying?" If I may take liberties with my editorial assignment and risk the good standing of my very appreciated friendship with Mr. Fritz, I would like publicly to express my personal belief that he would have gotten his message over in much better shape had he titled his pamphlet: "Who **Causes** the Buying?"

There is quite a difference between **causing** and **doing** the buying. Literally speaking, the man who heads the concern and whose privilege it is to sign the checks might be considered by many as being the one who does the buying. And if we stick to the literal, dictionary analysis of the matter, that consideration would be accurate. But before the man who signs the checks can **do** the buying, there must be a **cause.** And at least in the paper and pulp industries, it has been abundantly proved that the cause and the result are frequently not the same.

Back in the days of the quill pen and the letter press, one of the almost insurmountable obstacles to the sale of typewriters was the inability of people to run them. They were so new and strange, not to say awkward, that only here and there was found a girl who could successfully and rapidly operate the "new-fangled writing machines".

To overcome this serious handicap, typewriter manufacturers encouraged the establishment of schools where girls and boys might be taught typing. Public high schools, business colleges, and other educational institutions everywhere were emplored to establish a typewriting and short-hand department.

One manufacturer, endowed with a bit more vision than the rest, went so far as to contract with business colleges and secretarial schools for the supplying of all typewriter equipment free of charge. It was their offer to equip any business college in the country with all the typewriters they needed—to keep these machines in constant repair—and to replace them with new ones every year or two—providing the school would guarantee to use their machines in the proportion of four to one of any other make. That is to say: if the business college had need for 20 typewriters, they could get 16 of them from this one manufacturer—without cost for either installation, repair or replacement. The only obligation to the school for this free use of costly equipment was the assurance that 80 per cent of all the machines used would be of that particular make.

Having practically all of the recognized, reputable schools in the United States 80 per cent equipped with one brand of typewriter, meant that fully 80 per cent of the semi-annual crop of stenographers and secretaries would have a distinct preference for this particular make of machine. Thus did this single manufacturer have turned out into the business world for him literally thousands of the most effective sort of salesmen, since at least in the earlier days of typewriters the manager of the office would buy the particular typewriter the stenographer could best use.

Here is a classic example of who causes and who does the buying. The thousands upon thousands of girls sent out into the business world as stenographers literally **sold** this one manufacturer into the position of unquestioned leadership in the typewriter field,—a position, we understand, that has never been relinquished. Being familiar with the machine and having a distinct preference for it, the girl suggested (caused) the purchase of **her** type of machine. The manager of the business, of course, gave the order, signed the requisition, okayed the invoice and endorsed the check. Because of this clerical work he probably believes that **he** bought a new typewriter. As a matter of fact, the little slip of a girl in the position of stenographer bought the machine—or at least **caused** the purchase.

The same principle follows in the purchase and sale of almost every commodity. In the long run, the party using or needing the appliance, does the buying. Had a typewriter salesman called on the office manager with intent to sell a new machine, that salesman wouldn't have gotten to first base had there been no such thing as a new stenographer. Far-sighted men in the paper industry have for years been talking about a co-operative advertising campaign to sell more paper to the public, but be-

cause they must talk only to the men who sign checks, and cannot go to the people who need the material thereby getting to the cause of the matter, no sale is made—and the industry is letting valuable time and much tonnage slip by forever. Thousands upon thousands of hours in time are lost by salesmen and manufacturers' representatives in trying to cultivate purchasing agents, general managers and executives. A vast percentage of this lost time would be saved and more sales would be made, if the manufacturer's representative would go over (or "under" if you choose) the heads of the department executives and sell the men in the plant who use or need the equipment. Once sold on the merit and need of the equipment, the men in the shop would go to their superiors and demand its installation.

Nearly every good mill executive knows the truth of the above statement. Mr. Joseph H. Slater, Manager of the Escanaba Paper Company (Michigan) for instance stated in a recent letter that "While it is true that new developments and large purchases are usually passed upon or authorized by the president or board of directors, the actual requests or demands for new equipment or repairs to old equipment, emanate from the mill managers, superintendents, or foremen."

Quoting again, this time from Mr. Lee L. Wilson, Mill Superintendent for the Morris Paper Mills (Illinois) ". . . In my experience of over 30 years as superintendent, I have always had the purchasing of any repair material without consultation. On new material, of course, there is necessary consultation with the manager. I think most superintendents have this same authority."

The men using or needing the material, whether it be lubricating oil, beaters, or electric hoists, are the men who cause the purchase of such material—and this regardless of the position of the man.

Not only is this a fact that should be fully recognized by equipment and supply manufacturers, but also by pulp and paper mill executives as well. The men in the mill—assistant foremen, foremen, department superintendents, machine tenders, and all others know from constant contact with their machinery and equipment just what is wrong with it—what should be done to make it function better—and what added production or increased savings would result through the installation of new or improved equipment. This latter knowledge comes through their study of technical trade papers, advertising literature, and not infrequently, through their personal contact with men employed in other mills.

Foremen and superintendents—if they are worthy of their title—are constantly on the alert for accurate knowledge of better methods or improved machinery. Finding either of those two desirables, they make it their business to learn all there is to know about them, their application and their cost. Equipped with that knowledge, these men frequently make requests to the management for their installation. If such installation involves the scrapping of other machinery, however, the management is wont to delay or refuse the installation on the grounds that "our present machinery is working well and making us money. Why change now?"

Here again is that great and awful ogre of Obsolescence. Without the necessary faith in the foreman's judgment, and with lost recognition of the fact that he is in reality the purchaser of equipment, the management continues to endure the invisible losses that come through the use of obsolete machinery.

Two of the most pertinent paragraphs I have read during recent months were found in an advertisement of the Beloit Iron Works as it appeared in our Canadian contemporary the "Pulp and Paper Magazine". So valuable are these two paragraphs that I am taking the liberty of quoting them—in the hope of still further extending their influence.

"One of the biggest obstacles to industrial progress is the viewpoint which considers machinery as permanent property to be conserved, used, repaired and restored as human life might be, merely to keep it running. Machinery has no such value; any piece of machinery is merely a tool, to be used only so long as it provides the efficient way of doing a particular job. The life of the tool is not to be measured by the life of the metal or of the parts of which it is composed, nor yet of the length of time they can be kept running—but by the one single factor of its comparative efficiency. As highly developed as we may be, there is no question but that throughout American industry, and for our paper mills in particular, there are far too many tools now in use whose life is ended.

"The mills which are making outstanding successes are constantly buying new tools; they are buying modern machinery today, and not many years hence they will again be buying modern machinery of tomorrow. Not because the machinery they buy today is worn out, but because its useful, efficient life is ended; because there is a still better tool available. There is probably no greater waste than through the use of obsolete machinery."

If the meaning of these two paragraphs could be branded indelibly into the minds of all paper and pulp mill executives—and if those executives could be brought to the realization that the individual foremen and superintendents are 90 per cent right when they try to cause the purchase of improved machinery—this industry would presently become the talk of the nation because of its rapid rise in common and preferred stock values. There is nothing so costly to the progress of the paper and pulp industry as its present day reluctance to replace obsolete machinery and methods.

Give the foremen and the superintendents an opportunity to indicate needs in equipment and manufacturing methods. He is the man who uses the equipment—he knows what should be scrapped and what should be installed—and after all he is the man who caused purchases.

Bisulphite and Alkaline Soda Processes

A Contribution to the History of Early Work on Bisulphite of Soda Pulping Liquors

By JAMES BEVERIDGE

In a communication from James Beveridge, dated Richmond, Va., August 2, 1929, an interesting contribution is made to the history of methods pertaining to the economical employment of bisulphite of sodium in the pulping of wood. Mr. Beveridge is widely known as the author of the *Papermaker's Pocketbook* and speaks with a certain authority on the subject as will be perceived from the comments which he makes in his communication which is reproduced in full below. Mr. Beveridge says:

I HAVE read with much interest the abstract of L. J. Dorenfeldt's paper on pulp production by means of sodium bisulphite as published in the July number of THE PAPER INDUSTRY. This relates to a method providing for the double decomposition of bisulphite of lime and sodium sulphate whereby a mixture of bisulphite of soda and calcium is obtained in solution and hydrated calcium sulphate ($CaSO_4$ $2H_2O$) is thrown down as an insoluble precipitate.

The reaction is a simple one, although not complete, and was known to me as early as 1886. The early years of my business life were spent in one of the large alkali works at Widnes, Lancashire, under the late Dr. Ferdinand Hurter, whose assistant I was for a number of years, and during that time I acquired a knowledge of the behavior of alkali soda salts and of the recovery of sulphur from alkali waste, the well-known methods of manufacture by the Leblanc process. Later, in 1885, I drifted into the paper and pulp industry.

In 1888, I became associated with the Ekman Pulp and Paper Company, Northfleet, Kent, England, in charge of their soda and sulphite plants, etc., and in 1890 took out two patents in England and Canada—one for the decomposition of bisulphite of lime with (1) sodium sulphate (salt cake), and (2) magnesium sulphate, to obtain bisulphites of soda and magnesia respectively, calcium sulphate being precipitated as a common product in both cases.

At that time at Northfleet we were using bisulphite of magnesia obtained from Grecian magnesite, and the object of my first patent (Eng. Pat. 12,400 Aug. 8, 1900) was not primarily to obtain bisulphite of soda to replace the Ekman system, but to obtain a cooking liquor that would yield an easy bleaching pulp as well as a pure calcium sulphate that could be used as a loading material in the manufacture of high grade writing and printing papers. On this account and for other reasons, applications for two patents were made under the title "Improvements in the Manufacture of Pearl Hardening". (The magnesia patent was dated May 6th, 1891, No. 7,797).

A complete liquor plant capable of making five to ten tons of pulp a day was erected at Northfleet, and the process operated secretly for a considerable time, though finally abandoned late in 1893, for reasons I need not here set forth, but not on account of the quality of either the pulp and pearl hardening obtained. Difficulties, of course, were met with and had to be overcome, but both products were excellent.

Some other patents relating to this subject were subsequently obtained, viz.—Eng. Pat. 16,505, October, 1890; 2,872, February 15, 1891; and 14,105, Aug. 4. 1892. I believe, however, that my patent of August 8, 1890, antedates any work Dorenfeldt and Drewsen did in this connection.

About this time both of these gentlemen were at work formulating their system which had for its object the recovery of the soda and sulphur for reuse from the waste sulphite liquor, where soda was used as the base. It was obviously advantageous to procure a cheap bisulphite of soda to start with, and I am sure Mr. Dorenfeldt will remember the letter he wrote to me in 1894 while I was building the Hjerpen Cellulosefabrik in the north of Sweden, and our subsequent meeting and discussion in the hotel at Trondhjem. My association with the Leblanc soda process led me to conclude that the Drewsen-Dorenfeldt soda and sulphur recovery system would not be commercially successful as it was founded on the Leblanc process, and I so expressed myself at that time. This is now well-known and acknowledged. Nevertheless, their contribution to the subject was comprehensive enough.

During my active connection with the pulp and paper industry in Europe and the North American continent, I have used every known basic bisulphite and alkaline soda process on the large scale, with one exception (Keebra), and have followed the different modifications of these processes that have been suggested from time to time as well as the various methods for the recovery of the principal chemicals employed and of the lye products.

To realize many of the processes referred to means a modification of the present pulp plants, and the erection of a more or less complicated chemical factory, and unless the method is clean cut, plant simple, and comparatively inexpensive, it is doubtful if manufacturers would embark on any of them.

Mr. Dorenfeldt mentions in his prize essay that the waste sulphite lyes obtained from the use of bisulphite of soda (with a proportion of calcium) can be used in place of salt cake in the sulphate mill. This I believe is the most valuable suggestion where it can be carried out. It involves some modification of the pulp washing plant, and a proper system of evaporation. The organic matter present in the concentrated liquor will provide sufficient heat for this purpose. The presence of a comparatively small quantity of lime will not interfere with the smooth running of the sulphate pulp mill.

Sincere enthusiasm arouses respect and admiration.

Merchants Meet with Manufacturers

Annual Conference of Hammermill Bond Agents at Erie, August 21-23, Results in Notable Gathering for Business and Pleasure

Of the annual reunions of paper merchants and manufacturers which are now so prominent a feature of executive policy on the part of the manufacturers, one of the most interesting and most productive of results in the way of business and recreation is that of the Hammermill Bond Agents, which has been held for eighteen years in succession at Erie, Pa., where the big mill of the Hammermill Paper Company is situated. The roster of paper merchants who registered as Hammermill bond agents constitutes an elite directory of paper merchants throughout the country.

Preliminary Details

The proceedings of the conference began with a luncheon meeting of the Advisory Committee at Weigelia Lodge, the summer home of Norman W. Wilson, vice president and general manager of the Hammermill Paper Company, on Tuesday, August 20, when a program was outlined for the general business meetings to be held on Wednesday, Thursday and Friday. Present at the luncheon meeting were the following members of the Advisory Committee: R. L. Tillman, Beekman Paper Company, St. Louis; John D. Swigart, Swigart Paper Company, Chicago; W. M. Stetson, Jr., Storrs & Bement Company, Boston; J. Nacht, Union Card & Paper Company, New York; Harold Helmer, Beecher, Peck & Lewis, Detroit; B. E. Reeves, Alling & Cory Company, Pittsburgh; A. D. Tayloe, Tayloe Paper Company, Memphis; A. B. Sherill, Riegel & Co., Philadelphia; M. B. Olmstead, Zellerbach Paper Company, San Francisco. There was one absentee, Ernest C. Mead, Richmond Paper Company, Richmond, Va., who was at home recuperating from a recent illness.

Souvenirs of the Conference

On registering at the Kahkwa Club where the business sittings of the conference were held and games were played—Sport Events as they were styled in the printed list—each agent and visitor was handed one or two slips on which he was requested to print his name. Agents and visitors who had attended the conference for five years in succession were admitted as members of the Old Guard and received in addition to an elegant and useful leather brief case fitted with a zipper fastener, a large blotter book attractively bound in embossed leatheroid with raised ornaments picked out in red, green and gold, and bearing the visitor's name in gold lettering.

Upwards of 120 agents and guests registered at the Kahkwa Club for the opening of the business session on Wednesday morning. Following a reception, luncheon was served and all became happily acquainted with each other.

The weather during the entire period of meeting was all that could be desired and it was not until the visitors began to disperse for their homes on the last day that any atmospheric disturbance was felt, the sky becoming overcast with a light shower of rain late on Friday afternoon near the close of the program of sports.

Explanation of a Flag at Half Mast

During the progress of the conference several of the visiting agents availed themselves of the privilege to go through the extensive plant of the Hammermill Paper Company and inspect the laboratory, every arrangement being made for these visits by means of special guides. Some observant members of the party noticed the tall flagpole at the entrance to the mill grounds and wondered why the flag was at half mast, for no news had been received of the death of any diplomat of other figure of state or national importance. On making inquiries it was learned that Nathan Johnson, an old colored man who for more than fifteen years had been butler for Ernest R. Behrend, president of the Hammermill Paper Co., had died in the local hospital on the preceding day. Mr. Behrend was overseas and was shocked at the news of his faithful servant's death. Hence the Hammermill flag at half mast. As Tom Sterrett of the Erie Daily Times remarked in his column that day: "Who says there's racial intolerance in America? When the large flag at Hammermill is half-masted for an old colored man, we're still a free, democratic nation".

Reasons for Business Prosperity

Owing to the unavoidable absence of Ernest R. Behrend, president of the Hammermill Paper Company, the annual conference and business sessions were presided over by Norman W. Wilson, vice president and general manager. In opening the conference on Wednesday afternoon, following a few words of welcome, Mr. Wilson spoke briefly on business conditions, which except during the war boom were never better, he said, than at present. He attributed this to several reasons, among them being the fact that we have no class distinctions in this country; that our market is able to absorb our tremendous output, because we pay high enough wages to make every man a potential buyer; that we have taken advantage of mass production and mass distribution through machinery, and because we have taken particular pains to see that all lines of endeavor should enjoy the same economic advantages. After a feeling allusion to four Hammermill agents who had passed on during the year, following which the audience rose in silent tribute, he called on C. W. Chabot, vice president in charge of distribution, to speak.

Problems of Marketing

Mr. Chabot took as his theme the problems that must be solved in the marketing of any commodity. The climax of his speech and perhaps the high light of the conference was reached when Mr. Chabot announced the introduction of a new line, "Management Bond a Hammermill Product." The newest addition to the Hammermill lines is said to represent the first serious effort of any large manufacturer to place a standardized paper of bond characteristics in the field of low-priced papers intended for large volume use. Prices for various quantities will be announced by Hammermill agents upon receipt of their initial stocks within the next few weeks. Management Bond will be made in white and seven colors, none of which will be exactly like the colors of Hammermill Bond.

Following this, Harrison R. Baldwin, manager of sales, discussed the sales problems that would likely be encountered in introducing the new product. He also spoke of and demonstrated the steady increase in the regularly advertised lines since 1915.

A. Ellis Frampton, advertising manager, followed with a discussion on the psychology of advertising as applied to our rapidly changing conditions. Mr. Frampton also explained the program of national trade paper and direct-by-mail advertising that is to be used.

Business sessions were held on the mornings of Thursday and Friday. These consisted for the most part of round table discussions of the problems of both agents and producers. Following the morning business sessions the afternoons were given over to golf and other sports.

The Advisory Committee

New members of the Advisory Committee of Hammermill Agents were elected during the conference as follows: Hubert L. Carter, Carter Rice & Co., Boston; R. S. Bull, Bradner Smith & Co., Chicago; I. W. Carpenter, Jr., Carpenter Paper Company, Omaha.

The following seven members of the advisory committee continued in that capacity: E. C. Mead, Richmond Paper Company, Richmond; J. Nacht, Union Card & Paper Company, New York; Harold Helmer, Beecher Peck & Lewis, Detroit; B. E. Reeves, Alling & Cory Company, Pittsburgh;

A. D. Tayloe, Tayloe Paper Company, Memphis; A. B. Sherrill, Riegel & Company, Philadelphia; M. B. Olmsted, Zellerbach Paper Company, San Francisco.

J. B. Jones, Western Newspaper Union, Omaha, and A. M. Miller, The Central Ohio Paper Company, Columbus, Ohio, were elected to the Advertising Committee, along with C. W. Dearden, Rourke-Eno Paper Company, Hartford, Conn., P. A. Stuhlreyer, Diem & Wing Paper, Company, Cincinnati, Ohio, and Thomas Lathrop, Lathrop Paper Company, New York, whose term of service continued.

There was an elaborate program of sports provided for the visitors during the three-day meeting. The events and prize winners were announced as follows:

Thursday's Sports and Winners

Agents coming from that section of the United States that lies east of a line drawn from Erie, Pa., to New Orleans played those coming from the section west of that line.

Golf Winners

East vs. West Match: The West captained by E. A. Petrequin, of the Petrequin Paper Company, Cleveland, Ohio, won the match. The captain will keep the cup which will be played for again next year.

Medal Handicap: Low Gross—C. A. Esty, with an 86, received a brown caddy bag.

Low Net—Roscoe Taylor, with a 70, received a set of matched iron clubs.

Second Low Net—Frank P. Leslie, also with a 70, received a yellow alligator rain-coat. In the draw to decide the tie Mr. Taylor won from Mr. Leslie.

Kickers' Handicap was won by H. E. Whitaker with a 73 for which he received a Gladstone bag.

Obstacle Golf: First prize—M. L. Kratz with a 35 received a golf coat. Second prize—Alan Chandler, with another 35, received a sweater and socks. B. E. Reeves also tied with a 35, but lost out in the draw to decide first and second place.

Winners at Quoits

First: J. M. Knablein received an auto robe.

Second: B. W. Lipscomb received an automatic toaster.

Friday's Sports and Winners

Medal Handicap: Low gross—Graham Blandy II, with an 86, received a black caddy bag. Low net—Robert S. Johnston, with a 62, received a set of matched wood clubs. Second low net—B. E. Reeves, with a 70, received an alligator rain-coat.

Kickers' Handicap: Won by Sidney T. Jones, with an 88, for which he received a Gladstone bag.

Obstacle Golf: First prize—B. R. Moore, with a 32, received a Hammond electric clock. Second prize—R. N. Clements, with a 40, received a set of binoculars.

Quoits

First: O. W. McKowen received a Telechron clock.

Second: E. A. Crowell received an automatic parking light clock.

J. H. Horne & Sons Co., Lawrence, Mass., announces that B. W. West, formerly with E. D. Jones & Co., is now a member of its organization in charge of beater and jordan sales.

Bird & Son Receives Certificates[1]

Aerial Markers On Plants at Norwood and East Walpole

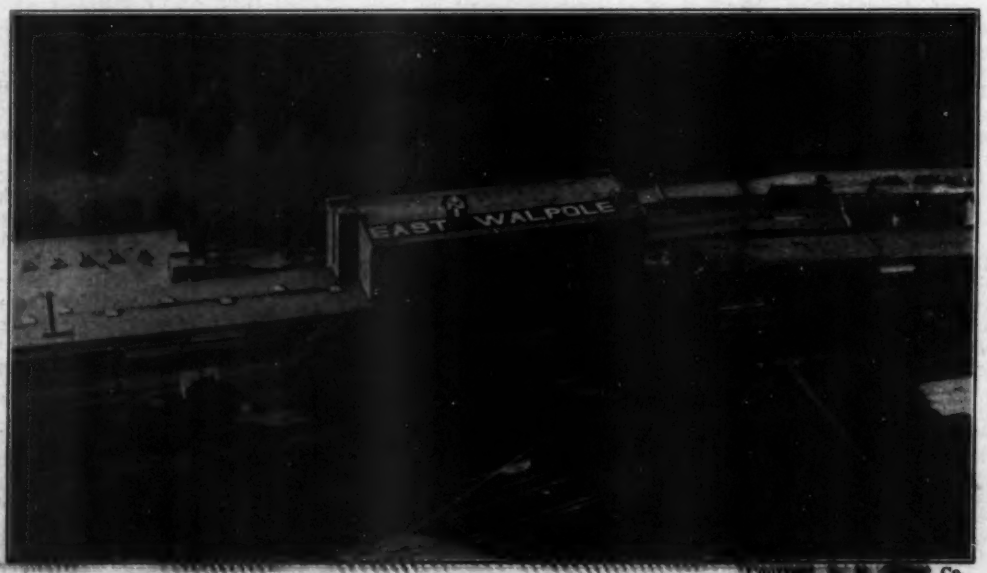
COLONEL CHARLES A. LINDBERGH, writing in a December issue of the Boston Globe, said: "It is simple and inexpensive to paint the name of a town on the top of some roof, and in the present day of aeronautical development every village in the United States should be plainly marked." Less than six months after this article appeared, Bird & Son, Inc. had erected two such signs, one in Norwood, and one in East Walpole, and had received complimentary acknowledgment of their usefulness in the form of certificates presented by the Daniel Guggenheim Fund for the Promotion of Aeronautics, Inc. These certificates, which are reproduced in this issue, were given to Bird & Son and bear the signature of Harry F. Guggenheim, President of the Fund, and Colonel Charles A. Lindbergh. They further signify that Norwood and East Walpole are now recorded as "identified" in records which are available to the Department of Commerce and the Post Office Department.

The labeling of towns, a thing to be laughed at a few years ago, has now become almost a necessity. Especially is this true of towns which are not large enough to have other means of identification. Like boards at a railway station, these signs are indispensable—more so than railway signs, in fact, because they give the pilot the only sure means of locating his exact position—a thing that is often difficult in bad weather, as those who have been in the air know well.

The principal difficulty which has stood in the way of many towns erecting such aviation signs has been the prohibitive cost of construction. Various forms and types of air markers have been devised and are now on the market, but in nearly all cases they are rather elaborate, and very expensive. A sign which could be as effective as the more expensive ones, but which could be erected cheaply, was needed. And it was Bird & Son who solved the difficulty for Norwood and East Walpole. A marker, as effective as any on the market, and made entirely of Bird quality products at a comparatively small cost, was designed by our Research Department and erected on the roof of the Floor Covering Storehouse in Norwood. This proved such a success that another similar sign was later built on No. 1 Box Shop at East Walpole.

The story of Bird & Son's share in putting Norwood and East Walpole on the air map begins with a letter written to the Company last December by Mr. Hollis W. Plimpton, Chairman of the Aviation Committee of the Norwood Cham-

[1] Reprinted from July, 1929 Issue of Bird's Neponset Review.



The East Walpole sign on the slag of the No. 1 Box Shop. Photograph taken by L. C. McDavitt of Norwood

ber of Commerce, asking the co-operation of Bird & Son in painting a sign on one of its Norwood Plants.

Mr. Wyman's reply was prompt, and an investigation was started at once to see what might be done. Prices on similar signs already built seemed unnecessarily high, and the matter was referred to our own Research Department, with the results that a new type of sign, made from our own products, clearly visible, and at only a small fraction of the expense for other signs its size, was designed. After considerable study, work was finally started on the roof of the Floor Covering Finished Products Storehouse. Letters fifteen feet high were cut from Bird's Paroid Roofing and cemented to the slate surfaced roof with Bird's Neponset Compound. The total length of this sign is 116 feet. After the letters were completed, the roof was painted black with Bird's Roof Coating and each letter was given one coat of aluminum paint. That the sign is effective is proved by the accompanying picture, taken from an airplane at a considerable height.

Shortly after this first sign was completed, it was decided to construct a similar one on the No. 1 Box Shop, and practically the same method was used in this work. The letters are of the same height, but the sign is longer, extending about 200 feet. Some difficulty was experienced with the slag roof, which is similar to a gravel roof, but it was found that by carefully sweeping off the loose slag the Paroid Roofing could be securely cemented. A Paroid block was first mopped on the roof with the Neponset Compound, and then the finished letter was cemented to it, making a smoother surface and clearer characters. A black border of the compound, filling in between the letters and extending for three feet above and below them was applied just before the final coat of aluminum paint.

Both signs, in addition to the names of the towns, carry a directional arrow pointing North, with a large letter N. Although no official reports of the signs have been made by aviators yet, unofficial reports and the proof of the pictures show how useful they may be in the future.

At about the same time that communication was received from the Norwood Chamber of Commerce, Bird & Son also received letters from the Boston Chamber of Commerce and the American Legion of Walpole, which is sponsoring the construction of a sign in Walpole Center. The Boston Chamber of Commerce showed special interest in the Paroid Roofing material upon which the sign was painted. A report on our experiences in sign construction has been sent to this department, and it is expected that it may have considerable effect in helping smaller communities to do their part in labelling the ground for aviation. The Boston Chamber of Commerce has also written to the Manager of the Boston Airport, asking him to pass the word around that, if any pilots are near here, they check up on the signs and let the Secretary know their opinions.

At the suggestion of Mr. Edsel Ford all Ford Dealers have been requested to report any such construction of signs to the Guggenheim Fund, and consequently, shortly after the completion of the Norwood sign, Mrs. George Lepper of Lepper's Garage, Norwood, reported to the fund. Later, word was sent of the completion of the East Walpole sign, and congratulatory letters were received signed by Mr. Harry F. Guggenheim, President of the Fund.

As a final recognition, Bird & Son received the certificates signed by Lindbergh which read as follows:

Daniel Guggenheim Fund
For the Promotion of Aeronautics.

This is to certify that Norwood (or East Walpole), Massachusetts, has completed the work of identification for the service of aerial navigation, thus contributing to the establishment of a nation wide system of transportation by air.

In recognition of this achievement this certificate is presented to Bird & Son by the directors of the Fund.

(Signed) Harry F. Guggenheim, President
Charles A. Lindbergh

Photograph taken by L. C. McDavitt of Norwood. Courtesy R. H. Baker Co.

Sign at Floor Covering plant, Norwood, where experiment of using Paroid roofing for letters was first tried

Recent Orders for Dayton High Speed Beaters

Announcement is made by The Dayton Beater & Hoist Co., Dayton, Ohio, that within the past month a number of orders have been received for Dayton High Speed Beaters. This business includes the following:

Three complete new cast iron tub beaters for the Western Electric Co., Chicago; six for the Chemical Paper Mfg. Co., Holyoke, Mass.; and one for Joseph Parker & Son Co., New Haven, Conn. Also four complete new cypress tub beaters for the Buckeye Cotton Oil Co., Memphis, Tenn.

In addition to orders for complete beaters, this company is now rebuilding six old-type beaters into Dayton High Speed type for the Franklin Board & Paper Co., Franklin, Ohio. Similar reconstructions have been made on two beaters for the Warren Mfg. Co., Rieglesville, N. J., and one for the John A. Manning Paper Co., Troy, N. Y. At present, the Standard Division of the Sutherland Paper Co., Kalamazoo, Mich., is changing over one of its beaters into Dayton High Speed type, while the Orono Pulp & Paper Co., Orono, Me., is rebuilding six of its beaters into High Speed Daytons.

Great Lakes Paper Co. Uses EM Motors

For the plant of the Great Lakes Paper Company at Fort William, Ontario, the Electric Machinery Mfg. Co., Minneapolis, Minn., furnished three 75 hp., 360 r.p.m. synchronous motors for driving pulp screens, and five 2800 hp., 225 r.p.m. synchronous motors for driving pulp grinders.

THE PAPER INDUSTRY did not receive this information in time to include it in the article descriptive of the Great Lakes plant, which was published in the August issue.

Tappi Fall Meeting Program

September 24 to 27 Inclusive—First Three Days at Richmond, Va.—Last Day at Washington, D. C.

THE Fall Meeting of the Technical Association of the Pulp and Paper Industry which will be held in Richmond, Virginia, on September 24 to 26 and in Washington, D. C., on September 27 will conform in program to the style of meeting held last year at Wausau, Wisconsin, when nearly 400 attended.

The mornings in Richmond will be devoted to the discussion of technical papers, the afternoons to mill visits and the evenings to dinners, entertainments and dances which will be informal.

Symposiums Feature Technical Meetings

Rather than have a program in which a large number of subjects are discussed the morning programs will be used largely for symposiums on subjects vital to present day pulp and papermaking. It will be remembered that at Wausau three symposiums were considered; namely, forest products research, technical control, and waste. This year the three following timely subjects will be presented: pulp evaluation, shrinkage and paper standardization.

Pulp Evaluation

Under the leadership of Donald E. Cable, of the Oxford Paper Company, the TAPPI Committee on Physical Standards for Pulp has been studying ways and means to bring about an acceptance of a suitable method for measuring pulp quality. Three papers on this subject will present data upon which the discussion will be based. The men to read these papers are Harry Bradford, of the Rex Paper Company; H. A. Rothchild, of Kimberly-Clark Corporation; and J. E. O'Connell of the Lake St. John Power & Paper Company, Dolbeau, P. Q. The Committee on Physical Standards is engaged in carrying on a large amount of co-operative investigations to determine the relative merits of the laboratory beater, the ball mill and other hydrating equipment. W. F. Moore of the United States Testing Company, is making an exhaustive review of the literature dealing with this subject which he expects to publish in the near future thereby making a most valuable contribution to the literature of pulp evaluation.

Patent Possibilities

Charles W. Rivise, a member of the association, and a Philadelphia lawyer, interested in patent work, will read a paper dealing with the patentable features of machinery and process developments. Mr. Rivise is said to have made a thorough study of many cases of paper mill patent litigations and has come to certain conclusions that should be of real interest to TAPPI engineers, chemists, and inventors.

Shrinkage

What portion of the materials used in papermaking may we reasonably expect to lose unaccountably? The cost men have been considering this subject and have come to conclusions other than those arrived at by technical men. The discussion of this subject, following the reading of papers by Aubrey Taylor of the Bedford Pulp and Paper Company and Donald K. Pattillo of the National Aluminate Corporation, should reveal facts that will assist many mill men in reducing waste.

Paper Standards

Inasmuch as the Paper Section of the Bureau of Standards will keep "open house" for members of the Technical Association on September 27 it is appropriate that some of the objectives of that organization be given consideration at the Richmond meeting so that when the Bureau is visited, a greater appreciation of the work being done there will be had. B. W. Scribner, chief of the Paper Section, will outline the program of work and indicate some of the Bureau's accomplishments. Merle B. Shaw, who is in charge of the paper mill at the Bureau, will read a paper on "Papermaking Research." Mr. Shaw did a large amount of work in preparing for the change in composition of paper currency. F. T. Carson, inventor of the Carson size tester, and other instruments, will read a paper dealing with paper standards.

Other Papers

Several papers on special subjects will be presented to assure a well balanced general program. O. W. Callighan, of Edgar Brothers Company, will read a paper dealing with the use of American clays for coating and loading. James A. Cameron, president of the Cameron Machine Company, will discourse on slitting and winding principles, and R. R. Baker, of the Westinghouse Electric and Mfg. Company, will describe some new sectional drive developments.

Plant Visits

The local plants of the Albemarle Paper Company, Standard Paper Mfg. Company, and the Manchester Paper Board Company will afford the members an opportunity to watch the manufacture of blotting, book, filter, bonds, offset, specialties, kraft, chipboard, and other grades of paper. The trip to Hummel-Ross will provide an opportunity to observe the manufacture of sulphate pulp, sulphate liner and cylinder specialties, boxboard, wrappings, gummed tapes, envelope and other papers, and at West Point, Virginia, the new mill of the West Point Corporation will be in process of construction, while at the Chesapeake Corporation sulphate pulp is being made, together with saturating felt and kraft papers. In Washington the District of Columbia Paper Mfg. Company manufactures soda pulp from pine as well as a large number of special papers beautifully finished and embossed.

Banquets and Entertainment

At the Jefferson Hotel, the general Richmond headquarters, plans are being made to have a most elaborate social program. Reservations for rooms at the Jefferson and Wardman Park Hotels should be sent to the Secretary of Technical Association of the Pulp and Paper Industry, 18 East 41st Street, New York, N. Y., at once. It is urged that members travel by train and insist on getting a railroad certificate which will entitle them to one half fare privilege on the return trip.

Tentative Program

Monday, September 23—

7:00 p.m. Dinner for members of executive committee and committee chairmen.

Tuesday, September 24—

8:00 a.m. Registration at Jefferson Hotel.
9:30 a.m. General Session in auditorium of Jefferson Hotel.
9:30 a.m. Business Meeting, P. H. Glatfelter, chairman. Committee reports.
11:30 a.m. Paper: "What Is Patentable in Papermaking," by C. W. Rivise.
12:00 m. Paper: "Slitters and Winders," by James A. Cameron.
1:00 p.m. Luncheon, Jefferson Hotel.
2:00 p.m. Visit to mills: Albermarle Paper Company, Standard Paper Mfg. Company, Manchester Pulp and Board Company.
7:00 p.m. Dinner and entertainment, Jefferson Hotel.
9:00 p.m. Dancing, Jefferson Hotel.

Wednesday, September 25—

9:00 a.m. General Session. D. E. Cable, chairman. Pulp Evaluation Symposium.
Paper: "Modern Recovery Practice," by C. L. Wagner.
Paper: "Pulp Testing," by H. C. Bradford.
Paper: "The Beater Method of Evaluating Pulp," by H. A. Rothchild.

Paper: "Estimating Pulp Quality," by J. E. O'Connell.
Paper: "A New Sectional Speed Regulator for Sectional Paper Machine Dryer," by R. R. Baker.

1:00 p.m. Luncheon, Jefferson Hotel.

2:00 p.m. Visit to mills of Hummel-Ross Fibre Company, Hopewell, Virginia.

7:00 p.m. Banquet and entertainment, Jefferson Hotel.

Thursday, September 26—

9:00 a.m. General Session. M. A. Krimmel, chairman.
Paper Standards Symposium—B. W. Scribner, chairman.
Paper: "Papermaking Research," by M. B. Shaw.
Paper: "Paper Standard," by F. T. Carson.

10:00 a.m. Shrinkage Symposium—Allen Abrams, chairman.
Paper: "Recent Developments in Domestic Clay for Coating and Loading," by O. W. Callighan.
Paper: "Invisible Losses in Paper Manufacturing," by A. T. Taylor.
Paper: "Shrinkage Reduction," by D. K. Pattillo.

1:00 p.m. Luncheon, Jefferson Hotel.

2:00 p.m. Visit to mills of Chesapeake Corporation, and the West Point Corporation.

NOTE:—As opportunity affords, any questions that members desire to have discussed will be taken up during the general session. Write your questions on paper and give them to the Secretary.

NOTE:—Transportation by train to Washington. Train leaves Broad Street Station. Headquarters in Washington will be at the Wardman Park Hotel.

Friday, September 27—

Headquarters, Wardman Park Hotel, Washington, D. C.

9:30 a.m. Busses leave hotel for visit to the U. S. Bureau of Standards and the District of Columbia Manufacturing Company.

2:00 p.m. Lunch at U. S. Government Printing Office, visit to departments of Printing Office.

NOTE:—Any members desiring to vist other places in Washington please notify the Secretary or H. R. Harrington, of the District of Columbia Paper Manufacturing Company, so that special transportation arrangements may be made.

Program of Fall Meeting, News Print Service Bureau and Northwestern Division Superintendents Association

To be held at Hotel Marinette, Marinette, Wisconsin, September 20 and 21, 1929, under auspices of the Marinette & Menominee Paper Co., Falls Manufacturing Co. and Badger Paper Mills, Inc.

FRIDAY, SEPTEMBER 20

9:00 a.m. Visiting mills.

1:00 p.m. Informal luncheon at Riverside Country Club.

2:00 p.m. Meeting of cost accountants and engineers under auspices of News Print Service Bureau.

Papers:

(1) Application of Higher Steam Pressure to Pulp and Paper Mills—
T. A. Marsh, Combustion Engineering Corporation.

(2) Practical Experience with High Pressure Steam in Pulp and Paper Mills—
A—W. F. Thiele, Consolidated Water Power & Paper Co.
B—G. H. Suhs, Rhinelander Paper Co.
C—E. P. Gleason, Nekoosa-Edwards Paper Co.
D—Grover Keeth, Marathon Paper Mills Co.

(3) Bonus System in Pulp and Paper Mills—J. P. Hagenauer, L. V. Estes, Inc.

(4) Experiences with Bonus System—
A—Fred Deutsch, Marathon Paper Mills Co.
B—J. K. Vanetta, Nekoosa-Edwards Paper Co.
C—Representative, Hoberg Paper & Fiber Co.

(5) Modern Methods of Weighing Chips and Wood —(Speaker to be announced).

(6) Cost System and Methods of News Print Service Bureau—G. A. Ware, News Print Service Bureau.

Dinner—6:30 p m.

Toastmaster, Joseph H. Slater.
Speaker of the evening to be announced.

SATURDAY, SEPTEMBER 21

9:00 a.m. Visiting mills in Marinette, Menominee and Peshtigo. Mills closed to visitors afternoons. Special arrangements will be made for those desiring to visit Oconto Falls and Escanaba.

12:00 Informal luncheon at Riverside Country Club.

2:00 p.m. Meeting at Hotel Marinette.

Papers:

(1) Seasoning of Wood—Dr. C. Audrey Richards, Forest Products Laboratory.

(2) Hydrogen ion Control and Causes for Deterioration of Paper—
A. B. Hansen, Marinette & Menominee Paper Co.

(3) Slime Control Problems—D. K. Patillo, National Aluminate Corporation.

(4) Measuring, Sampling and Analyzing of White Water—A. Pesch, Falls Manufacturing Co.

(5) Election of Officers of Northwestern Division.

(6) Question Box on Mill Problems.

(7) Kraft Manufacturing Problems—A. Gustin, Falls Manufacturing Co.

Dinner—6:30 p. m., at Hotel Marinette (ladies and men).
Toastmaster, W. W. Hinnenthal, Gen. Manager, Marinette & Menominee Paper Co.

Entertainment—Cotterill Sisters.

Speaker—P. F. Neverman, Secretary, Marinette Industrial Board.

9:15 p.m. Teddy Budlong Post No. 39 American Legion Drum and Bugle Corps Exhibition on Dunlop Square.

Golf on any of the three golf courses located in Marinette and Menominee. Ladies Entertainment—A separate dinner will be held for the ladies on Friday evening.

Our Advancing South

Trend of Development in Pulp and Paper Manufacture During Past Thirty Years and Future Possibilities

By HARRY E. WESTON
Staff Representative

ONE of the important characteristics of industry is its tendency to migrate. This migration, in part, might be due to man's instinctive desire to wander and to search for more favorable surroundings. It might be necessary for industry to follow markets, to get closer to supply of raw materials, to obtain cheaper raw materials to decrease power costs, to obtain more plentiful supply of labor, or, in brief, to lower production costs. Competition might be the spur urging migration or it might be simply the desire of man to create, to build, and to conquer.

The paper industry, like other fields of industrial enterprise, has a tendency to migrate. Although modern industry is only of recent origin it is interesting to trace the spread of papermaking from its inception in China, to Arabia, and westward over a large part of Europe and thence to the New World. Many changes in the industry have taken place since the first mill in the Colonies was built in 1690 at Roxborough, near Philadelphia. Most of these developments have come since the invention of the wood pulp processes.

Not many years ago the paper industry of the United States was largely confined to New England, New York and the states bordering on the Great Lakes. Although each of the states in this territory are still very important paper producing states, many of the mills within this area have undergone many changes in order to meet existing markets or to survive in case of unusual competition. Some of the older mills have found it necessary to change over from one grade of product to another. Many of the smaller mills have gone into the specialty business.

With the many changes in the industry of the North has come a remarkable development in the South. The general industrial expansion of the South probably has been responsible for some of the growth of the pulp and paper industry within the territory, but no small part of the development has been due to the adaptability of the sulphate process to the pulping of southern woods and particularly the southern pines.

The South

In order not to be confusing, it might be well to designate the area to be considered arbitrarily as "The South". Too often, it seems, the boundry between the North and South has been set as the Mason and Dixon line, a boundary established during the Civil War. Rather than limiting the areas by such a line, which because of existing circumstances was definitely fixed, it seems best to define the area because of climatic conditions, nature of plant growth, etc. Due to these differences, the South has been taken entirely arbitrarily as the area included by the states of North and South Carolina, Georgia, Florida, Alabama, Mississippi, Tennessee, Arkansas and Texas.

Development of Industry

Through the years, since the erection of the first mill in the South, the industry has viewed the promotion and expansion of successful plants, and the building and decline of unsuccessful ones. A study of this development would reveal a number of victories and failures. The victories, however, have made possible the creation of a well-established industry, an industry that bids well to become one of the outstanding industries of the entire Southland.

A brief historical sketch of some of the mills within this territory that are now in operation will show how gradual and yet firmly has been the establishment and growth of the industry.

At least two mills established during the "Nineties" are still in operation. John G. Fleming & Sons, Oak Cliff Paper Mill, Dallas, Texas, was first placed in operation during 1893 to produce straw wrapping paper and similar grades. It was designed as a six-ton plant, but necessary changes to increase production and to meet market demands were made during the intervening years, and today finds the mill capable of producing about sixty-five tons of boxboard, building paper, wrapping paper, and roofing. During 1899, the Southern Novelty Co. placed into operation a plant at Hartsville, S. C. This company, converters of paper, became the Sonoco Products Co., and today under this name the company produces 80 tons of specialty papers daily for use in their own converting plant.

Epochal Period During 1900-1910

The first decade of the twentieth century marked an epoch in the history of paper manufacture in this territory. The United Railway and Trading Company utilized bagasse as the fibrous raw material in their plant at Braithwaite, La., during this period. The plant began operations in 1900 and was originally designed as a twenty-ton unit. The E. Z. Opener Bag Company obtained the plant in 1917, added equipment and made necessary changes from that time through and including 1927 to manufacture kraft bag and wrapping papers. The E. Z. Opener Bag Company formed a corporation about June, 1928, and now operates the paper mill at Braithwaite as well as a new mill at Tuscaloosa, Ala. The parent plant at Braithwaite has at present a daily productive capacity of forty-five tons.

During the same decade was begun the utilization of southern pine for pulp. The Yellow Pine Paper Mill Co., in 1904, located an eight-ton soda mill at Orange, Texas, to pulp this species. Changes were made in 1910 to increase production, while the plant was changed from the soda to the sulphate process in 1911 and has operated as a sulphate mill since that time. Real credit is due to the pioneering efforts of this concern because from this very small beginning has come the present day kraft industry. The present output of this pioneer mill is thirty-five tons per day.

Another interesting development of the decade, 1900-10, was that of the Champion Fibre Company, Canton, N. C. The plant was started in 1907, and since its inception has experienced marvelous growth and development. The plant was originally designed to manufacture soda pulp, sulphite pulp, and chestnut extract. Changes during the intervening years have been made so that this firm is now producing not only the products for which the mill was designed, but also sulphate pulp, caustic soda, container board, book paper, bond paper, envelope, bristol board, and press board. About 300 tons of pulp, 150 tons of paper, 300 barrels of chestnut extract, and about twenty tons of caustic are now being produced daily. This plant fills a unique position in the pulp industry of this country as it is believed to be the only individual plant in which sulphite, soda, and sulphite pulps are produced.

Another mill in North Carolina started operations during the same decade. The Roanoke Rapids Paper Co., designed to produce twenty tons of kraft wrappings per day, was started in 1908 at Roanoke Rapids. The firm name of this organization has changed from the Roanoke Rapids Paper Co. to that of the Halifax Paper Corporation and the production schedule began during 1925.

Progress in Decade 1910-1920

A number of new mills began operations during the second decade of the present century. Among the plants now in operation that started production activities during that period are the following: International Paper Company, Moss

Point, Miss.; Mead Fibre Co., Kingsport, Tenn.; Bogalusa Paper Co., Inc., Bogalusa, La.; Tennessee Paper Mills, Chattanooga, Tenn.; National Paper Co., Bolton, Ga.; Apex Paper Mfg. Co., Inc., New Orleans, La.; Buckeye Cotton Oil Co., Memphis, Tenn., and the O. B. Andrews Co., Chattanooga, Tenn.

The present plant of the International Paper Company at Moss Point, Miss. began operations as the Southern Paper Co. during 1913. The mill was designed to produce thirty tons of kraft pulp and paper per day. This production was increased to one hundred ten tons during 1923 for kraft papers ranging in weight from eighteen to one hundred fifty pounds. The Southern Paper Co. was purchased during 1928 by the International Paper Company and is now one of the important mills of the southern division of this company.

Kingsport, a city in the mountains of Tennessee that has received much press publicity during the past few years because of its unusual industrial characteristics, was chosen for the site of the plant of the Kingsport Pulp Corporation. This company erected a forty-ton soda mill which began operations during 1917. This company operated the pulp mill until 1920 when it was taken over by the Mead Fibre Co. A paper mill was added during 1923. Due to the addition of the paper mill and other changes in the plant since its construction, the mill now has a production schedule of one hundred tons of bleached soda pulp and seventy tons of paper daily. The paper production includes about forty tons of supercalendered book with the remaining thirty tons divided between M. F. book, and high bulk and tablet papers.

The Bogalusa Paper Co., Bogalusa, La., erected to utilize waste wood from the saw mill operations of the great Southern Lumber Co., started to produce pulp and paper during July, 1918. The mill had been designed to produce fifty tons of kraft containers per day. In October, 1924, the mill entered a new production schedule and today the daily production of the plant by grades approximates one hundred sixty tons of pulp, one hundred sixty tons of container liner, eighteen tons of kraft specialties, and fifty-five tons of wrapping and bag paper.

During the same month—July, 1918, the Tennessee Paper Mills of Chattanooga, Tenn. started operations. This plant was designed to produce a full line of folding and set up boxboards, test liners, cracker shell stock, paper dish stock, egg case filler boards, and other specialties. The daily output is sixty tons per day.

Two other plants were started during 1918. One of these plants, that of the National Paper Co., was located at Bolton, Ga., to manufacture special grades needed by the company for converting purposes. The paper mill has a daily production of about ten tons for these purposes.

The other plant started during the year was that of the Apex Paper Mfg. Co., Inc. of New Orleans, La. In this case the mill manufactures eight thousand pounds per twenty-four hours of crepe toilet and towels. Plans are now under way for increasing the production. An 80-inch paper machine is to be installed.

The Buckeye Cotton Oil Co., a subsidiary of the Proctor and Gamble Co., was located at Memphis, Tenn., for the purpose of converting cotton linters into pulp. The mill was designed as a sixty-ton pulp mill and was placed into production during July, 1920. Present plans include an expansion program for increasing capacity to one hundred tons per day as well as the installation of a 132-inch fourdrinier equipped with a Minton vacuum dryer together with other paper mill equipment necessary to convert fifty tons of pulp per day into .040 sheets for use in making rayon by the viscose process. It is expected that these extensions will be complete by January 1, 1930.

Another Tennessee mill started during 1920 was that of the O. B. Andrews Co., of Chattanooga. When placed in operation the plant had a capacity of thirty-five tons per day, but about two years ago the production was increased to fifty-six tons per day. The products include white patent coated manilas, chipboard, and news lined chip liner.

Marked advances in the industry of the South have come from 1920 to date. The Chas. Boldt Paper Mills Co. of New Iberia, La., was built as a strawboard mill and started operation during November of 1921 using rice straw as the fibrous raw material. Today, with an average daily production of fifty-five tons, this plant manufactures all grades of folding and set-up boxboards and container liners as well as the strawboard for which the mill was originally designed.

During December of 1920, the pulp mill of the Bastrop Pulp and Paper Co., erected during the year, was operated for a few days. The plant was then shut down and did not resume operations until March, 1922. The production of the plant was seventy tons of kraft pulp daily. The first paper machine at Bastrop was installed during 1923. This machine was started November 25th to make fifty tons of kraft paper daily. The pulp mill was enlarged during

Airplane view of Brown Paper Mill Co., Inc., West Monroe, La.

Airplane view of The Champion Fibre Co., Canton, N. C.

1926 and a second paper machine installed. This machine was started up on September 23, 1926. After the completion of this expansion program, the capacity of the plant was one hundred forty tons of pulp and one hundred ten tons of paper per day. The Bastrop Pulp and Paper Co. was sold to the International Paper Company, on June 15, 1925, and gave the International their first kraft mill in the South.

The year 1925 saw several plants enter the field. One plant, a paper mill, was built at Mobile, Ala., to produce set-up boxboard. This plant, placed in operation during March of that year, has operated under the firm name of Mobile Paper Mills and is now producing thirty tons daily of all grades of folding boards as well as set-up boxboards, and colored specialties.

A second mill placed in operation during 1925 was that of the Brown Paper Mill Co., Inc. at Monroe, La. This plant since starting operation has had a remarkable growth. Designed as a sixty-ton kraft pulp and paper plant, and placed in operation during September of 1925, it was found necessary within two years to increase the capacity to one hundred sixty-five tons per day. This work was completed and the mill entered new production schedule in September only two years after the plant had begun to function. Now, less than two years after the first expansion, is planned another increase in production to bring the capacity of the plant up to three hundred fifty tons daily. The present production includes kraft paper and board.

Another mill which began to function during September, 1925, was that of the Louisiana Pulp and Paper Co. of Bastrop, La. This mill had been built during 1924 and 1925, and was designed to produce one hundred seventy tons of kraft pulp and one hundred ten tons of kraft paper per day. A sixty-ton board machine was installed during 1927. The plant was purchased by the International Paper Company on March 15, 1927, and thus became the second kraft mill of this organization in the South.

Additional expansion of the industry took place during 1926 when the plants of the Calcasieu Sulphate Paper Co., Inc. and that of the Mason Fibre Company were placed on an operating schedule. The Calcasieu Sulphate Paper Co. located its plant at Elizabeth, La., and began the production of kraft pulp and paper in June, 1926. The plant was designed to produce thirty-five tons of kraft wrapping paper daily.

One of the remarkable advances in the production of wood pulp and its conversion into board came with the development of the Mason Fibre Company at Laurel, Miss. In this case, chips charged into specially designed guns were reduced to pulp by discharging the guns under unusually high steam pressures. This mill started operations in July, 1926, and its products are already known to the entire country. The original unit was designed to produce 100,000 feet of board per day. This production was increased to 250,000 feet per day in August, 1928; to 300,000 feet in June, 1929, and to 430,000 feet in August, 1929. This large production includes structural insulation board, ⅛-inch and $\frac{7}{32}$-inch Presdwood, Quartrboard, and insulating lath. The firm name has been changed from The Mason Fibre Company to Masonite Corporation.

Another interesting development within the past few years has been the production of board from tannin extracted chestnut chips. The first mill to enter production on this product is the plant of the Southern Extract Co. at Knoxville, Tenn. It has an estimated capacity of fifty tons per day.

Following the installation of the plant at Knoxville came the plant of the Tennessee Extract Corporation at Nashville, Tenn. This plant placed in operation January 1, 1928, has a productive capacity of fifty tons daily of .009 Chesboard corrugating material. It also uses as its raw material the chestnut wood from which the tannic acid has been extracted.

A Community Development

Hodge, located in the hill section of Louisiana and in Jackson parish, was only a small sawmill town when the Southern Advance Bag and Paper Co. decided to locate there. A construction company was organized and ground was broken on September 5, 1927, for a plant to produce one hundred tons of kraft pulp and paper, and 5,000,000 single-walled bags per day. Construction work continued throughout the winter months and on April 15, 1928, the pulp mill unit was placed in operation. On June 1, 1928, the paper mill began to function.

In a little over a year since placing the plant into operation, the population of the town has increased from about six hundred people to approximately two thousand people. The town, owned and operated by the mill was incorporated early in 1929.

In addition to building the mill, it was found necessary

to construct a considerable number of homes for employees, to erect one church and school and to build a dormitory for the women employees.

The physical wants of the people are satisfied through the operation of a very modern and complete department store. In this store, it is possible to purchase anything that might be desired from foodstuffs to clothing, furniture, or drugs. At present, plans are under way for the erection of a theatre.

One church had been previously serving the community. Today there is a Union church for those of protestant faith and a Catholic church for those of Roman Catholic belief. The school property after erection of the new building, was deeded to the parish school board. The school covering a grammar school curriculum has an attendance of approximately two hundred pupils.

The success of the entire development is manifested by the fact that already an addition to the bag factory is in progress. With the new addition completed, the production of the bag plant will be increased to 12,500,000 bags per day.

The third plant to enter production of corrugated paperboard from tannin extracted chestnut chips within the territory is that of the Sylva Paperboard Co. of Sylva, N. C. The plant designed to produce sixty tons of corrugating board per day and placed in operation during July, 1928, has been reported to enter a production schedule of seventy-five tons daily beginning August 15, 1928.

Other Large Developments

The Gulf States Paper Corporation, formerly E-Z Opener Bag Co., chose as the site for the erection of their new mill a very delightful spot in a beautiful valley located only a few miles east of the center of the progressive little city of Tuscaloosa, Alabama. Tuscaloosa has a population of approximately 25,000 people, has good schools and churches and is proud of the fact that it is the home of the University of Alabama.

Construction was started on the plant at Tuscaloosa during June, 1928, and the plant was placed in operation during the month of April, 1929. The plant was designed to produce ninety tons of kraft pulp and paper as well as 4,000,000 to 5,000,000 all-kraft bags per day. Several interesting departures from usual practice have been made in this plant. A double cone type silo has been used for the storage of salt cake while an ordinary silo is used for lime. No rotary incinerators or smelters have been employed for the recovery of alkali from the black liquor, but three specially designed furnaces and boilers have been substituted for them. Each furnace has been designed sufficiently large to handle the evaporated black liquor from a production of about seventy-five tons of pulp per day, and not only completes the evaporation and smelting, with the concentrated liquor entering the unit in a small stream and the salt cake added continuously by air blast, but also generates steam in the boiler unit at 175 pounds steam pressure. The mill buildings have been designed to permit easy expansion through the use of wood panels in the wall construction.

Another interesting feature in the development and operation of this project has been the method employed for obtaining key men. As soon as it was definitely known that the plant was to be erected at Tuscaloosa, a number of men were sent from Tuscaloosa to Braithwaite, La., the home of the parent mill of the organization, and additional men were employed there to double the working force at Braithwaite. As soon as the new mill at Tuscaloosa was ready for operation, the men trained at Braithwaite were ready for the task. The vision behind this move is appreciated when it is known that within two months after starting up the new plant it reached a production peak above that for which it was designed.

The investment in plant and equipment at Tuscaloosa is approximately $3,500,000 and makes possible the employment of over five hundred people.

Another plant to produce .009 board from tannin extracted chestnut chips has been located at Harriman, Tenn. Ground was broken for this plant on the first of the year and according to a report was placed in operation six months later. The plant has a capacity of seventy-five tons of chestnut board. The processing, as in the other plants producing a similar product, is semi-chemical and semi-mechanical in character. The plant at Harriman together with the plant at Knoxville and Sylva are controlled by the Mead interests of Dayton, Ohio, but are operated by the individual companies.

A site about four miles north of the historic city of Mobile, Ala., on what is known as Magazine Point, was selected by the International Paper Company of Alabama for the location of a two hundred ton kraft pulp and paper plant. This plant, the latest and the most modern of the Southern International Paper Company's mills, is expected to be ready for operation sometime during September, 1929.

The actual site of the mill has been named Sibert in honor of General Sibert. General Sibert was the engineer in charge of the building of the Alabama State Docks and had been instrumental in bringing the paper mill and a number of other industries to Mobile.

With the completion of the mill at Mobile, the International Paper Company will be operating five complete kraft pulp and paper mills in the southern territory with a productive capacity of nearly eight hundred tons per day.

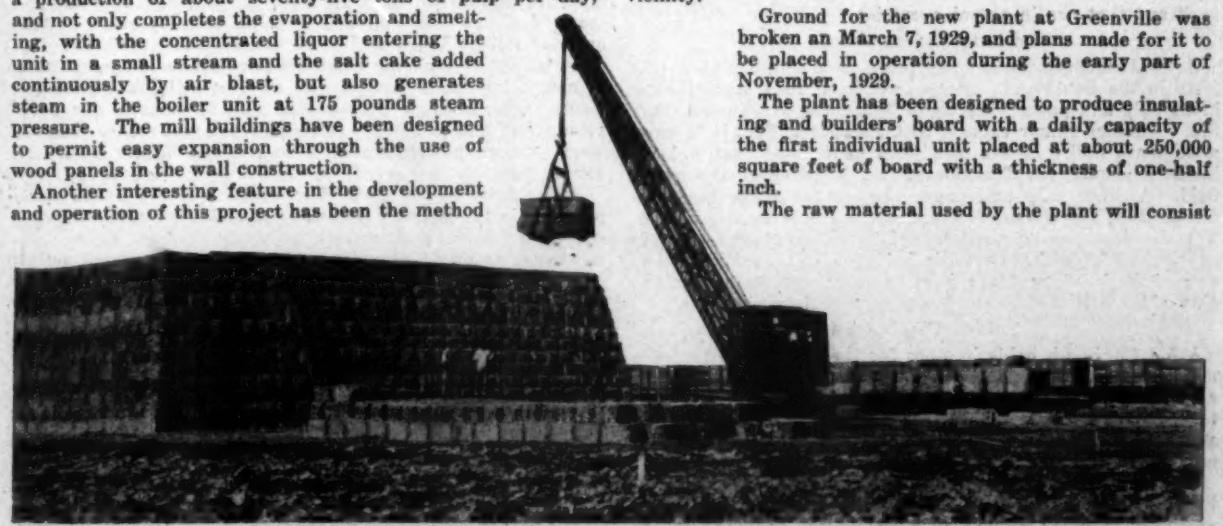
These plants include the two mills at Bastrop, La., obtained through purchase, the plant at Camden, Arkansas, erected by the company and placed in operation by them during March, 1928, the plant at Moss Point, Miss., purchased from the Southern Paper Co., and the latest mill at Mobile.

On the banks of the "Father of Waters" at Greenville, Miss., has been located the plant of the Greenville Insulating Board Co. This company is a subsidiary of the Chicago Mill and Lumber Co. with main offices at Chicago, Ill., and an organization with a number of sawmills in the immediate vicinity.

Ground for the new plant at Greenville was broken an March 7, 1929, and plans made for it to be placed in operation during the early part of November, 1929.

The plant has been designed to produce insulating and builders' board with a daily capacity of the first individual unit placed at about 250,000 square feet of board with a thickness of one-half inch.

The raw material used by the plant will consist



A mountain of baled bagasse awaiting manufacture at the mill of The Celotex Company, Marrero, La.

of about 40 per cent sawmill waste obtained from the sawmills of the parent organization and about 60 per cent will be brought down the Mississippi in convenient log lengths. Most of the wood in the process will be cottonwood and willow. Probably 80 per cent of the wood supply will be cottonwood and the remainder of willow and other species.

The interesting feature of this installation is that the wood is to be converted into pulp mechanically and the pulp formed into board over a specially designed vacuum filter designated as a felting machine. From the felting machine, the board passes thru a multiple press unit to equalize the thickness of the mat and is then dried in a drying unit common to such mills.

The Greenville Insulating Board Co. plans to purchase all electrical energy. This energy will be obtained from the Mississippi Light, Heat, and Power Company. From this same public utility will be purchased natural gas for supplying heat to dry the board and to heat such water as will be required in process work.

The plant when placed in operation will have an investment in buildings and equipment of approximately $1,000,000 and will employ one hundred to one hundred and fifty men.

In addition to the mills already described are a number of other plants within the southern territory. These mills would include the Noble Manufacturing Co. of Cedartown, Ga., a mill with a rated capacity of 30,000 pounds of indented packing and core papers, and built-up board per 24 hours; The Celotex Co. of Marrero, La., which uses bagasse in the production of 750,000 pounds of insulation and building board per day; The Flintkote Co. (formerly the Richardson Co.) of New Orleans and producers of all grades and weights of roofing and deadening felts with an estimated capacity of 70,000 pounds per 24 hours; Roanoke Rapids, N. C., manufacturers of 50,000 pounds daily of container and chip board; Economy Cone and Tube Co. of Rockingham, N. C. and successor to Rockingham Paper Co., an enterprise that produces 20,000 pounds of paper daily for use in the manufacture of paper cones and tubes, gray rag, boxboard and chipboard; Carolina Fibre Co. of Hartsville, S. C., a manufacturer of groundwood and sulphite as well as paper with a daily productive capacity of 24,000 pounds of groundwood, 30,000 pounds of sulphite and 60,000 pounds of paper classified as water finish fibers, dry finish sulphite, bogus, screenings, and M. G. sulphite; Southern Chemical Cotton Co. of Alton Park, Tenn., producers of 40,000 pounds of cotton linter pulp per 24 hours; Southern Extract Co. of Knoxville, Tenn., manufacturers of 80,000 lbs. of paper for corrugating purposes per 24 hours; and the Memphis Cotton Hull Fibre, Inc. of Memphis, Tenn., a producer of 36,000 lbs. of cotton seed hull fiber per 24 hours.

It is believed that these mills together with the mills concerning which historical data have been presented include all of the mills that are within the territory previously outlined and that are in actual operation.

Projects Contemplated

Several rumors have been reported as to contemplated projects in the Southland. Statements have been made that a kraft pulp and paper plant is to be located at Panama City, Fla. Another rumor reports that Pensacola, Fla., is to have a sulphate mill. It has also been understood that a local lumber company at Tuscaloosa, La., is to enter the paper field. Another pulp and paper project for a one hundred-ton mill in the State of Arkansas has also been reported. This development, it is understood, is sponsored by a sawmill company. With these rumors being brought to the attention of the industry, there must be other projects still in the chrysalis stage and have not yet made their appearance.

Future Possibilities

What the South holds in store for the paper industry cannot be easily prophesied. In only a few years it has become a most important sulphate pulp and paper producing territory. The rate of growth of the southern pines seems to be sufficiently rapid to offer an unlimited supply for a limited number of plants.

The southern hardwoods will be used much more extensively in the future than they are at present. Experimental investigations have already shown possibilities in this direction.

A considerable production of .009 board from tannin extracted chestnut chips in the northern extremities of the section has developed recent competition for the strawboard manufacturer.

Bagasse, the refuse from the sugar cane after the juice has been extracted has found a ready market in the production of a building board, well-known to the entire country. How long will it be before this same material will be used in the production of much higher grade paper products? Laboratory investigators have thrown light on the possible use of bagasse in these products, and research work is continuing.

The pine stump lands of the South have also caught the eye of the investigator and promoter. In several instances, considerable quantities of this stump wood is used daily in the production of naval stores, the resin and turpentine being extracted and the wood left in the form of small chips which are used at present only for fuel or left as waste.

Prominent plant sign designating name and products of Southern Advance Bag & Paper Co., Hodge, La.

Why not utilize this material in the production of paper products for which it is adapted; or perhaps better still, pulp the stump wood and recover the resin and turpentine during the manufacturing processes? Such utilization would certainly decrease the butchering of young pines to obtain naval stores. Trees much too small in diameter to be cupped for turpentine and resin are cupped annually, and many of these young trees become wind-fall in only a few years.

Do rice straw and some of the swamp grasses offer a sufficient volume of raw material and can they be pulped at a price that will interest industry? When will bamboo be grown in the South in sufficient quantity and of the right species to permit its utilization in the production of pulp and paper? Investigation has already proven the admirable qualities of bamboo fiber in paper making and it is understood that this raw material is being used by some of the oriental mills. When will it be economically profitable for other plants to duplicate what has been done at Bogalusa and is now being made ready to do at Greenville, to utilize all waste material from the sawmill that is suitable for pulp production, and to use the remainder for fuel rather than to send a large percentage of it to a trash burner where it simply goes up in smoke?

Without doubt the next few years will see remarkable progress in the industry in the South, and it would not be surprising to learn that grades of paper, such as newsprint, not being produced there at present were to be produced in the near future. The future possibilities of the region will naturally depend upon the vision and courage of the paper manufacturing industry.

New Company Will Render Research Service

A new company, affiliated with the Whiting Corporation and Swenson Evaporator Company, Harvey, Ill., has been organized expressly to render a complete research development and engineering service to the process industries—from originating the method or process to constructing the plant and starting actual operation.

The new company will be known as Whiting-Swenson Company, with headquarters at Ann Arbor, Mich. Prof. W. L. Badger is president.

Making Paper at Tuscaloosa

Gulf States Paper Corporation's New Kraft Pulp and Paper Mill and Bag Factory

THE desire of those responsible for locating the new plant of the Gulf States Paper Corporation was to choose a site where the enterprise would produce under most favorable conditions. After spending considerable time in scouting the southern territory it was decided to locate the mill at Holt, a small suburb about three miles east of the center of the beautiful little city of Tuscaloosa in Alabama. Tuscaloosa is a city of about 25,000 people and is familiar to many as the home of the University of Alabama, one of the best known institutions of higher education in the South.

The site chosen for the erection of the new plant consisted of 135 acres bordering on the Black Warrior River and situated at the bottom of a beautiful valley.

An 85-ton kraft pulp and paper mill, and bag factory capable of producing 4,000,000 to 5,000,000 bags per day was erected on the site in a little less than a year and was placed in operation during April 1929. The investment in the plant, giving employment to about 500 people, approximates $3,500,000.00.

Transportation available to the new enterprise includes all railroads which enter Tuscaloosa. These roads are the Southern, Mobile and Ohio, and the Louisville and Nashville. In addition to the railroads, the Black Warrior River is a navigable stream and is avilable for shipment of finished paper should it be deemed advisable.

Coal mines within 2½ miles of the plant are owned by the company but are not operated. These mines probably contain enough coal to supply the mill for twenty to thirty years. At present, coal is being purchased from local mining companies while the paper mill holdings are kept as a reserve supply. The coal being used at present is delivered to the plant by water.

The water supply for the plant is pumped from the Black Warrior River.

Process Equipment

A careful study of the accompanying illustration, showing the plant in plan and elevation, will give a comprehensive idea as to the size of the plant, the flow of materials through the plant, and the relative location of all major equipment.

The major process equipment includes:

Pulp Mill:

1—10 ft. x 30 ft. American barking drum
1—88 ft. Carthage chipper
1—Hummer screen
1—Lombard crusher
4—Vertical Digesters
12—Diffusers
3—Impco knotters
3—Reed-Spafford screens
4—Impco pneumatic thickeners
1—Joubert & Goslin quadruple effect evaporator
2—Swenson concentrators
3—Alkali recovery furnaces, of special design
2—Causticizing tanks
8—Settling tanks
1—Joubert & Goslin vacuum filters

Paper Mill:

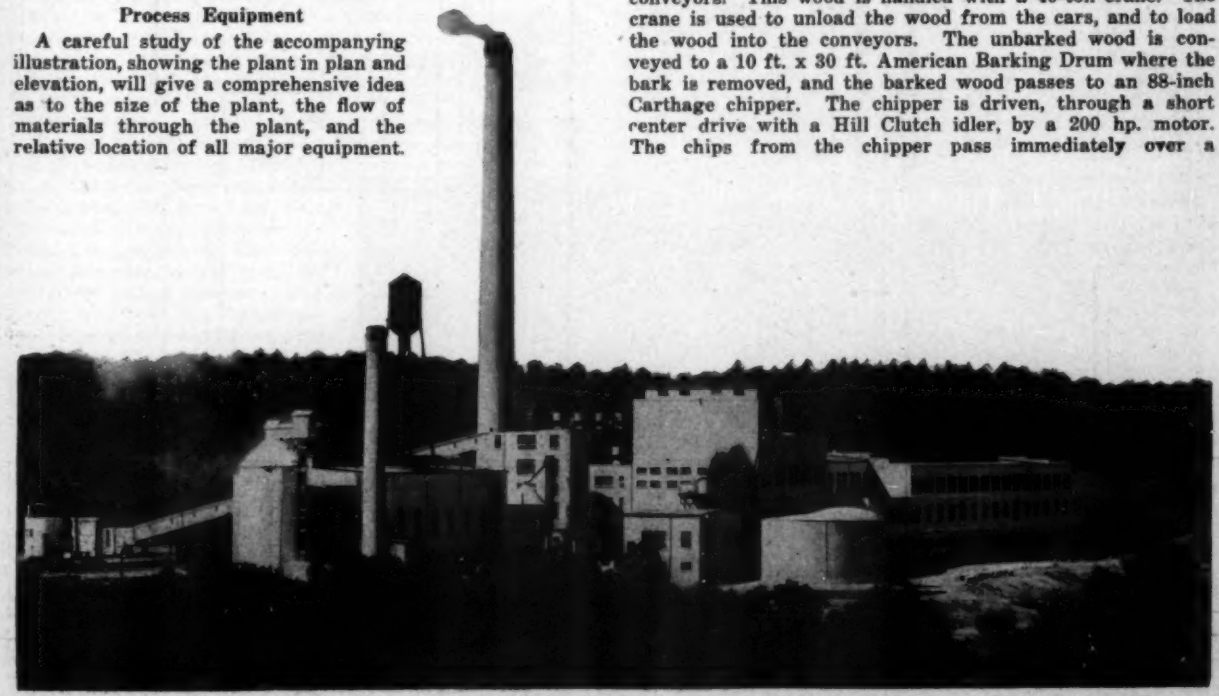
6—Diits beaters
8—Miami No. 2 Jordans
4—Bird paper machine screens
1—Beloit 234-inch fourdrinier
2—Camachine slitters and rewinders
1—Beloit double cutter
1—Seybold cutter

Bag Factory:

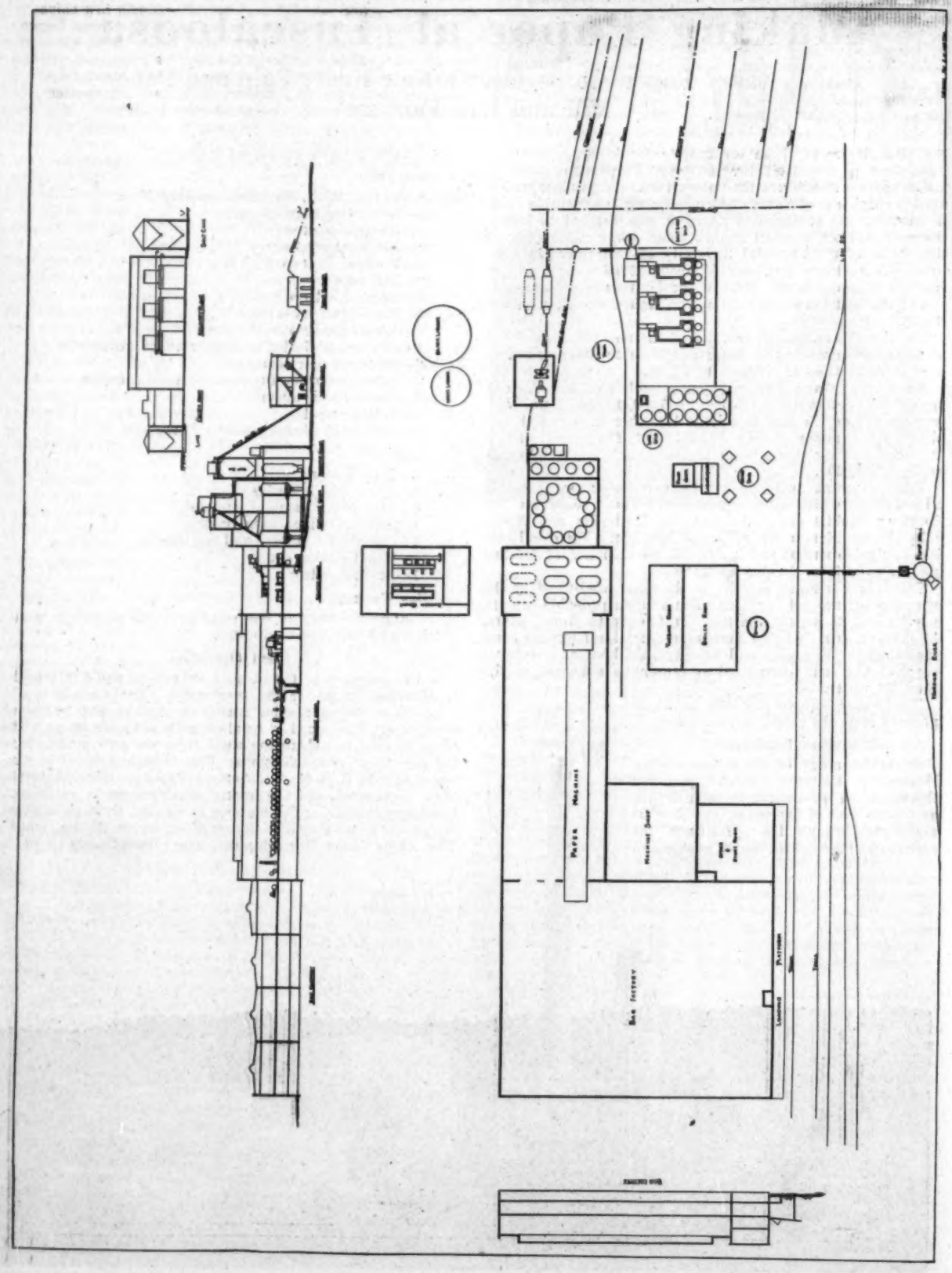
Approximately 70 bag machines with necessary printing and bundling equipment.

Plant Operation

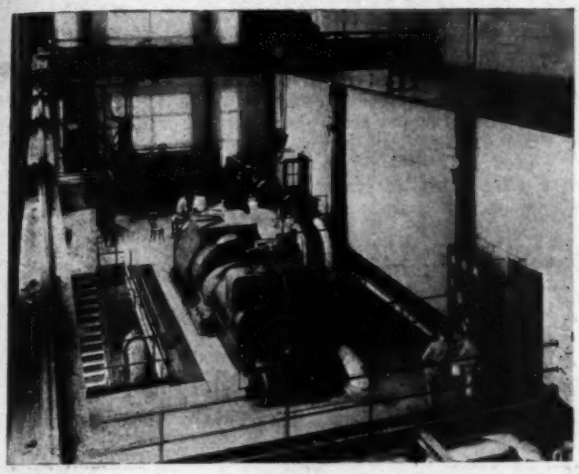
In the operation of the plant, wood in 5 ft. and 6 ft. lengths is delivered by rail to the wood yard. The wood is neatly piled in cordwood fashion along the tracks and pulpwood conveyors. This wood is handled with a 40-ton crane. The crane is used to unload the wood from the cars, and to load the wood into the conveyors. The unbarked wood is conveyed to a 10 ft. x 30 ft. American Barking Drum where the bark is removed, and the barked wood passes to an 88-inch Carthage chipper. The chipper is driven, through a short center drive with a Hill Clutch idler, by a 200 hp. motor. The chips from the chipper pass immediately over a



General view of the Gulf States Paper Corporation plant at Tuscaloosa, Alabama



Plan and elevation of the Gulf States Paper Corporation



View of power plant showing Westinghouse turbine generator

Hummer screen where oversize and fine material is removed. The oversize chips, rejected by the Hummer, pass through a Lombard crusher and are returned to the Hummer for a second screening.

The chips ready for the digesters are conveyed from the basement of the wood room to the chip bin by a blower. They drop by gravity into an Allington and Curtis chip charger which is supplied with air through a Wibraham-Green blower. The Allington and Curtis charger, located in the basement of the wood room, elevates the chips to the bin through a 12-inch 10-gauge welded pipe. A 75 hp. motor is required to furnish the air to elevate the chips.

The sawdust is blown by means of a Size-40 Sturtevant blower to the bark conveyor, where it is transported along with the bark as fuel to one of the recovery furnaces.

Four Walsh and Weidner digesters constitute the digester installation. They are located directly beneath the chip storage and receive the chips from storage by gravity. Each digester has a capacity of 2500 cubic feet, is of riveted construction, and is fabricated from places 1⅛-inch thick. The digesters are completely insulated and are equipped with the Morterud system for indirect heating. To increase the capacity of each digester, a Waern screen as a special digester fitting attached to the bottom opening, has been substituted for the ordinary perforated screen or false bottom within the digester shell.

The digesters are blown through a common swing pipe to a cyclone from which the stock discharges by gravity into one of twelve diffusers. The diffusers, like the digesters are of riveted construction. They were fabricated by the Chattanooga Tank & Boiler Works. Each diffuser has a rated capacity of 2750 cubic feet and is equipped with the ordinary type door for emptying. Wire cloth manufactured by the W. S. Tyler Company has been substituted for the perforated metal commonly used for diffuser bottoms. The installation is arranged on a circle as is common practice in the sulphate pulp industry.

After washing the stock for about eight hours it is dumped into a large concrete pit which is equipped with Hill Clutch Agitators.

From this pit, the pulp stock is pumped by a Shartle triplex plunger pump to three Impco knotters where knots and other partially cooked material is removed. This rejected material is pumped back to the digester room floor where it is thickened on an A. D. Woods' machine and charged again into the digesters along with raw chips.

The wet room installation consisting of the three Impco knotters previously mentioned, the three Reed-Spafford screens with .125 perforations, and the four Impco pneumatic thickeners is particularly interesting. The installation is simple, compact, and uses gravity flow from the knotters to the screens and from the screens to the thickeners. In addition, the stock from the thickeners discharges by gravity into a chest above the beaters.

The black liquor from the diffusers is evaporated in a Joubert and Goslin quadruple effect vacuum evaporator. The evaporator is of the horizontal tube type with each evaporator body containing 7000 1¼-inch heating tubes approximately 13 ft. long. The shells of the entire unit are of cast iron and are 13 ft. in diameter.

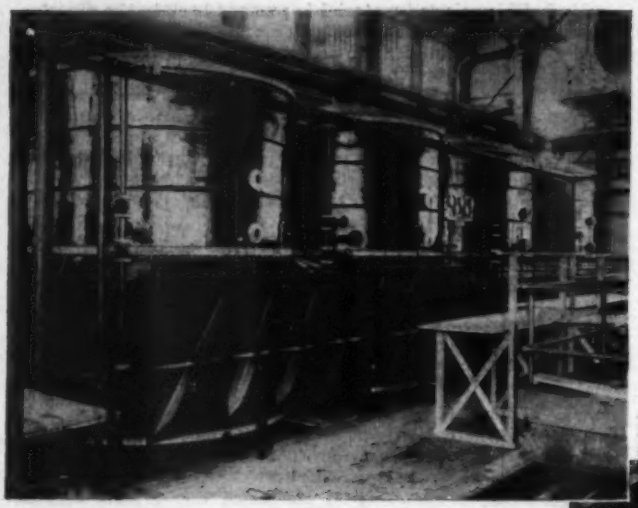
All auxiliary equipment including condenser, liquor pumps, wet vacuum pumps, etc., were supplied by the evaporator manufacturer. Two heat exchangers were also supplied to work with the evaporator. One heater contains 1500 square feet of heating surface while the second contains 750 square feet. These heat exchangers, heated with steam, are used to raise the temperature of the black liquor from that at which it is received in the evaporator department to that corresponding to the temperature in the evaporators.

The black liquor from the evaporator at about 30° Beaume is further concentrated by pumping it to two Swenson concentrators. The Swenson concentrators discharge the liquor at about 37° Beaume.

These concentrators have been designed upon a newly developed principle brought out by the Swenson Evaporator Company whereby through the use of an efficient centrifugal pump, especially developed for the purpose of pumping large volumes of boiling liquid under low heads, it is possible to attain the necessary velocity in the liquid passing through the evaporator or concentrator tubes for rapid heat absorption. By making use of this principle it has been possible to produce an evaporator capable of handling large volumes of viscous liquid without the necessity of a very large unit and thus to effect economies in operation. A unit of this design may use stainless steel tubes for the heating surface with the advantage of longer life, and it might employ higher steam pressures in the heating element and in the body itself because of the small diameter. The evaporator is capable of sustaining a back pressure of about 20 pounds, and the vapor issued from the evaporator is of a sufficiently high temperature to operate heaters used in conjunction with a quadruple effect evaporator. Under other circumstances this same ability might be used to enable the forced circulation evaporator to heat the first effect of a quadruple effect evaporator directly with consequent economy in steam over the ordinary operation of a quadruple effect evaporator. The

General view of wood yard showing switch engine and crane for handling wood

Plan and elevation of the Gulf States Paper Corporation

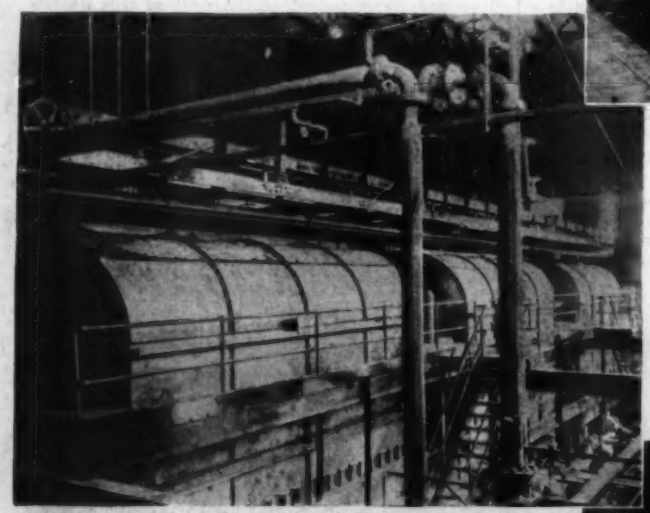


Joubert and Goslin quadruple effect evaporator installation

two concentrators or evaporators are each 6 ft. in diameter by 20 ft. long on the straight section. They are of welded steel construction and are ⅝-inch thick. Special internal construction practically prevents the carrying over of entrainment in the vapors from the units.

The concentrated black liquor is fed continuously into the furnaces. No rotary incinerators or smelting furnaces of the usual type have been employed. In their place three specially designed furnace and boiler units have been installed.

Each furnace is of the double smelter type with a 700 hp. Hedges-Walsh-Weidner boiler setting at the top and to the rear of the unit. The floor under the combustion chamber has been sloped so that any "carry over" will return by gravity to the smelting area. One furnace has been found sufficiently large to handle the concentrated black liquor from about 75 tons of pulp per day.



Three furnace units used in place of incinerators and smelters. Steam generated by boilers at 175 pounds pressure

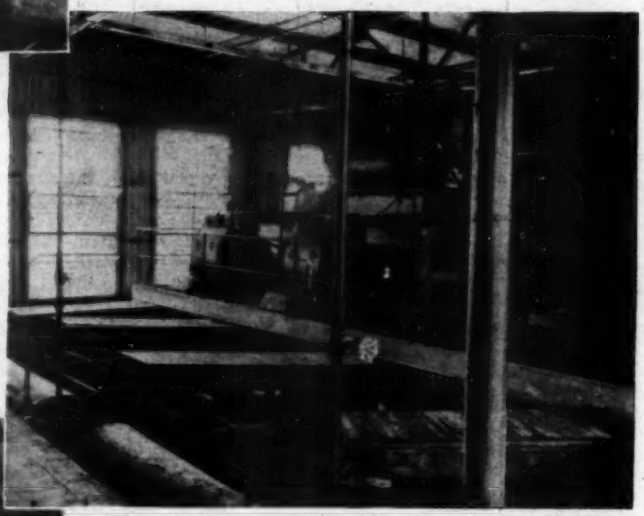
The concentrated black liquor is fed continuously into the furnace with the required amount of salt cake. The liquor flows into the furnace through a controlled pipe opening, while the salt cake, in pulverized form, is blown by air blast into the unit at a definite rate.

The salt cake is pulverized before storing. It is stored in a concrete silo of the double cone type. The top cone is used for live storage and discharges by gravity to a feeder conveyor for the furnaces. The oversupply from the feeder conveyor is returned to the bottom cone and is then elevated to live storage as needed.

The heat generated by the smelting operation is guided through baffles to the boiler tubes of the individual furnace. Here it is utilized to generate steam in the 700 hp. boiler at 175 pounds pressure. This steam is utilized for cooking, causticizing and for concentration of black liquor.

The smelt from the furnaces discharges into dissolving tanks. Since each furnace is of the double smelter type, there are two dissolving tanks with each of the three furnaces. Each tank is 8 ft. x 8 ft.

The liquor from the dissolving tanks is pumped to the causticizing units where lime is added. The lime, like the salt cake, is stored in a silo but in this case the silo is of only the single bottom type. From the silo, the lime is conveyed to each of the two causticizing tanks. Each of the tanks is 12 ft. x 12 ft. and is equipped with Hill Clutch Agitators. Lime and green liquor is fed into these units continuously. These units also discharge continuously into eight settling tanks likewise equipped with Hill Clutch Agitators.



View of wet room. Note location of knotters, screens and thickeners

The tank settlings are pumped to a Joubert and Goslin continuous vacuum filter where the lime sludge

Lime mud recovery filter

is separated from the liquor and washed free of caustic. This filter is equipped with a filter element 6 ft. in diameter with a 3 ft. face.

Following the causticizing operation the white liquor is pumped to storage where it is retained until required for cooking. The white liquor storage tank has a capacity of 300,000 gallons while the black liquor storage tank which is located near it has a capacity of 600,000 gallons.

Paper Mill

The pulp stock in the thickener chest flows by gravity into the beaters. The beater installation consists of six Dilts beaters arranged to operate as two continuous systems of three beaters each. The stock entering one beater of either system is passed to the second and third beaters of the corresponding system by the use of Griley-Unkle extractors. Rosin size is added to the stock in the second beater of each system.

The beaten stock discharges continuously into a stock chest of riveted boiler plate steel construction. This chest is about 8 feet in diameter and 95 feet long. It is located above the jordans and discharges to them by gravity. The location of the chest together with the method of discharge is novel. It serves not only as a storage chest for stock but also as a means of equalizing the pressure of stock as it enters the jordans.

The battery of Shartle jordans. Note stock chest above jordans as well as piping

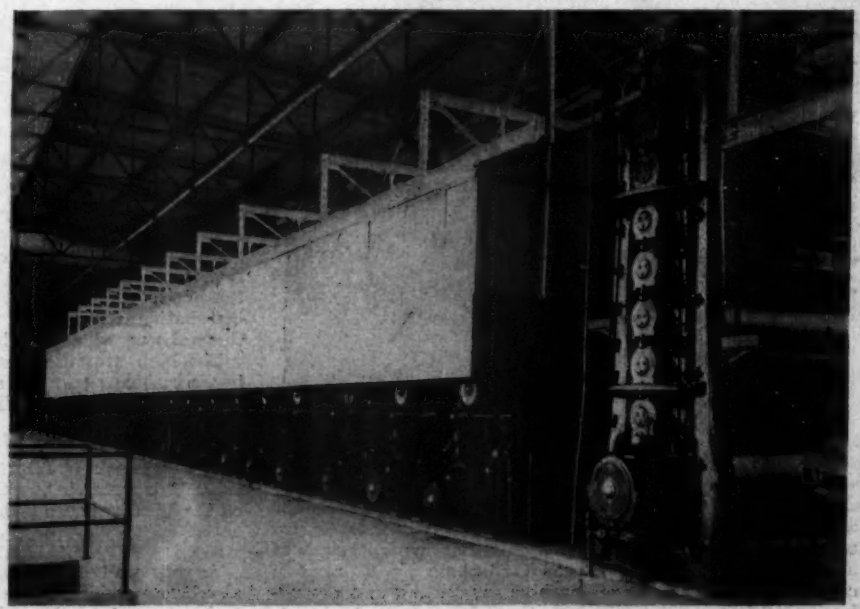
The jordan installation, composed of eight Miami No. 2 machines, is arranged, four jordans to a battery. Each jordan is equipped with Timken roller bearings and is directly connected to a 300 hp. 600 r.p.m. motor. The piping arrangement permits any of the jordans in a series to be cut out or in at any time. The jordans not only refine the stock but also act as pumps for raising the stock to the machine chest. The alum, apportioned by a Wallace and Tierman measuring device and then dissolved in a tank, is added continuously to the stock in the machine chest. This chest is of concrete and is 12 feet in diameter and 18 feet high.

The stock from the machine chest is pumped to the machine room where it is screened through four Bird screens with plates cut .030 prior to its entrance to the headbox of the paper machine.

The paper machine is a 234-inch fourdrinier manufactured by Beloit Iron Works and designed by them to operate at 1000 feet per minute. The wire of the machine is 234 inches wide and 80 feet long. The wire part, of the Beloit patented type, is adjustable to height, and is removable as a unit from the breast roll to and including the guide roll, table rolls, wire rolls, save-alls, and suction boxes. The fourdrinier part is equipped with an Aldrich high speed motor driven shake which may be adjusted when running for speed and length of stroke. All of the wire rolls, table rolls, and breast roll are carried in Timken roller bearings. Six suction boxes of non-corrosive metal with maple covers, and a 36-inch Beloit cantilever suction couch roll constitute other interesting features of the fourdrinier part. The flat boxes are arranged to oscillate. The suction roll is directly driven, and is equipped with cantilever device on the rear journal. This equipment supports the roll in an overhung position when changing wires, thus eliminating the need for a crane. Both the vacuum on the flat boxes and the suction couch is created through the use of a Chicago Pneumatic Tool Company vacuum pump arranged with water and air separator.

The Dilts beater installation

The press part of the machine is specially designed for the production of kraft paper at high speed. The first press consists of a 32-inch diameter Beloit suction press roll with a rubber covered top press roll. The Beloit suction press, like the suction couch, is a direct driven, and receives its vacuum from a second Chicago Pneumatic Tool Company vacuum pump installation. The second press rolls are both rubber covered while the third press uses a rubber covered bottom roll and a granite top roll. Anti-friction bearings are used for carrying the rolls of both presses. Timken bearings are employed for the bearings of the second press and for all of the felt rolls on the presses. The felt rolls are rubber cov-



The Dryer section of the paper machine showing Taylor hood

ered. Each press is equipped with a doctor and a brake conveyor. The brake conveyor automatically carries the brake to the front side of the machine.

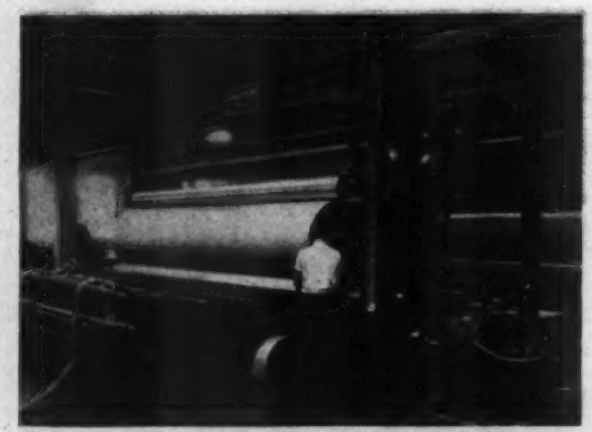
There are forty 60-inch diameter dryers in the dryer section. Each dryer has been bored, carefully turned, and given a high polish. Each dryer is equipped with self-aligning, oil-tight,

Paper machine wet end showing removable fourdrinier part

dustproof bearings which are lubricated by means of a continuous oil circulating and filtering system. All of the dryer gears are machine cut semi-steel. The steam joints are of Beloit patented balanced oilless type which are said to require practically no power regardless of the amount of pressure carried by the dryers. The felt rolls of the dryer section, as in the case of the press part, together with the felt dryers are mounted in Timken bearings. A Sheahan rope feed is provided for passing the paper through the dryer part. The Fulton Forced Vapor Circulating System, including a Fulton four-pass, counter current type Heat Exchanger, has been installed to supply steam to the dryers and to evacuate condensate from them.

Only one calender stack is used with the machine. The stack is eight rolls high with the roll bearings equipped with collar oiling boxes. These bearings are connected to the oiling and filtering system which serves the dryer bearings. The stack is also equipped with a motor lift for raising the rolls.

The reel on the machine is of the improved Aldrich uniform speed type. The main drum of the reel is 36-inches in



Camachine slitter and winder at dry end of machine

diameter. The drum and the steel paper reeling spools are all mounted in Timken bearings. The unwinding stands, for unwinding the paper from the spools to the winder, are of a heavy watercooled type. The Camachine No. 20 used in conjunction with the paper machine for slitting and rewinding has a drum face of 222-inches and is capable of winding rolls up to 60-inches in diameter.

The various sections of the paper machine unit are driven through Beloit bevel gear drives. The gears and pulley shafts are mounted in roller bearings. These drives are provided with a unique oiling system whereby the gears and pinions are constantly running in a bath of oil and the bearings inside the gear housings are oiled automatically. The gears and pinions are hardened steel and practically noiseless in operation. Belt drives from a line shaft in the basement extend upward through the machine room floor to each of the spiral bevel gear drives.

The jumbo rolls from the paper machine are weighed on a Howe scale before going to the Camachine slitter and winder. The rolls from the Camachine are also weighed to give an accurate check on slitting operations at all times.

The most important converting equipment of the finishing room includes one Type 18 Camachine, one Type 10 Camachine, one Beloit double for handling ten rolls, and one Seybold cutter.

Bag Factory

Approximately 50 tons of paper per day finds its way from the paper mill to the bag factory. In the bag factory, this

Drive side of the Beloit 234 in. fourdrinier paper machine

50 tons of paper is converted into 4,000,000 or 5,000,000 bags on about 70 bag machines. Those machines were specially designed by the company for the variety of bags manufactured. Printing machinery, and baling equipment for bundling the bags constitute the rest of the major equipment of the bag factory.

A mezzanine floor located at one end of the bag factory has been given over to rest and recreation rooms. These rooms have been laid out with the idea of furnishing a place for entertainment for all employees of the company.

Boiler Plant and Power Units

In addition to the three 175 lb. boilers installed in the recovery room, there is a separate boiler plant in which three 1000 hp. Combustion Engineering Company boilers are installed. The boilers are equipped with Riley pulverizers, and generate steam at 450 pounds pressure. Condensate from the entire plant furnishes the water for this high pressure installation, while water taken from the city main furnishes the make up water for the 175 lb. boilers.

The high pressure steam operates one 7500 kw. Westinghouse turbine generator and is bled from the turbine at 150 pounds and 35 pounds. This steam is used as process steam for cooking, drying, and evaporation.

The water supply, as mentioned previously, is obtained from the Black Warrior River which adjoins the mill property. This water is pumped as cooling water to the condenser on the Westinghouse turbine and is then used for mill supply.

Machine Shop and Storeroom

A very well equipped machine shop and storeroom have also been provided at the mill. The machine shop is designed to handle any of the ordinary repairs that would naturally fall to a mill of this size. The storeroom is very well ar-

ranged and many of the smaller mill supplies, such as bolts, screws, small valves, etc., are kept in Revolve storage bins. A system has been developed to give a constant check on the storeroom inventory at all times.

Mill Buildings

The mill buildings for the most part were designed for easy expansion and in some instances provision has already been made for the installation of additional equipment. Most of the buildings were built of structural steel and concrete with wood panels for temporary walls. Gypsum was used as the roofing material for the largest part of the buildings.

Plant and machinery layout were developed by the company's organization. All construction work including foundations for machinery, was done by the C. A. D. Bailey Company of Atlanta, and New Orleans. The Rust Engineering Company of Birmingham designed and erected the stacks as well as the brick work on both the boiler plants. They also laid the foundations for the recovery room boilers. The Grinnell Company installed the sprinkler system and all process and power piping with the exception of the piping in the high pressure boiler plant. Ross Engineering Company of New York City supplied and installed the heating and ventilating system of the entire plant, including the Grewin system on the paper machine. A 125 foot fire tower with a 50,000 gallon tank was erected by the Chattanooga Tank and Boiler Works. Fred Sprinkman Sons of Milwaukee handled all asbestos coverings in both the pulp and paper mill. The United Engineering and Construction Company of Philadelphia designed and erected the high pressure boiler plant complete. Roofs of most buildings were installed by Lathrop-Hoge Gypsum Construction Company of Cincinnati. The Chain Belt Company of Milwaukee furnished conveyors for the wood room and recovery plant.

Personnel

The personnel of the Gulf States Paper Corporation at Tuscaloosa includes H. E. Westervelt, president; R. E. Hartman, vice-president, in charge of manufacturing; F. M. Dickinson, vice-president in charge of sales; H. D. Warner, secretary-treasurer, and W. M. Cary, general superintendent.

Sales Organization

All selling is done through the E-Z Opener Bag Company which maintains offices at Tuscaloosa. The main offices of the sales organization were moved from Decatur, Illinois, to Tuscaloosa in order to more conveniently handle the entire output of the paper and bags from the plant of the Gulf States Paper Corporation.

Program of the Paper and Pulp Section of the Eighteenth Annual Safety Congress of the National Safety Council

TO BE HELD AT THE STEVENS HOTEL, CHICAGO, ILLINOIS, OCTOBER 1, 2 and 3, 1929

General Chairman, Kenneth L. Faist, Safety Dir., Champion Coated Paper Co., Hamilton, O.

Vice-Chairman, Canada, A. P. Costigane, Secy. & Engr., Ontario Pulp & Paper Makers' Safety Assn., Toronto, Ont.

Vice-Chairman, South, G. W. Phillips, Safety Engr., Champion Fibre Co., Canton, N. C.

Vice-Chairman, Extreme Southern District, W. H. Jennings, Safety Engr., Bogalusa Paper Co., Bogalusa, La.

Vice-Chairman, Middle West, M. G. Hoyman, Staff Supt. Personnel, Kimberly-Clark Corp., Neenah, Wis.

Vice-Chairman, East, N. F. Bartlett, Traffic Mgr., Hollingsworth & Vose Co., Boston.

Vice-Chairman for Paper & Box Manufacturers, H. C. Sackett, Paymaster, Alton Box Board & Paper Co., Alton, Ill.

Secretary, D. D. Thirkield, Sorg-Oglesby-Smith Paper Co., Middletown, O.

TUESDAY, OCTOBER 1
MORNING

Stevens Hotel, Fourth Floor, Room 430-A

9:30 Reports from Regional Directors. (Two minutes each).

10:00 Irreducible Minimum and What Then?—E. W. Corn, Field Representative, National Safety Council, Chicago.

10:45 Reducing Accident Frequency by Better Housekeeping—B. F. Edsall, Mgr. Engineering Dept., Glens Falls Indemnity Co., Glens Falls, N. Y.

11:30 Discussion.

WEDNESDAY, OCTOBER 2
MORNING

Stevens Hotel, Fourth Floor, Room 430-A

9:30 Report of nominating Committee and Election of Officers.

9:45 Questions and Answers—Led by Samuel Pruyn, Supvr. of Employment, Finch, Pruyn & Co., Inc., Glens Falls, N. Y. and D. D. Thirkield, Chairman, Safety Committee, Sorg-Oglesby-Smith Paper Co., Middletown, O.

THURSDAY, OCTOBER 3
MORNING

Stevens Hotel, Fourth Floor

9:30 Paper Mill Safety and Efficiency—N. H. Bergstrom, Treas., Bergstrom Paper Co., Neenah, Wis.

10:00 Discussion.

10:15 The Health Factor in Paper Mill Accidents—J. J. Plzak, Safety Engr., Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis.

10:45 Discussion.

11:00 Guarding of Paper Mill Machinery—Bagley & Sewall Co., Watertown, N. Y. (Speaker to be announced later.)

11:30 Discussion.

THURSDAY, OCTOBER 3
LUNCHEON

at 12:30 o'clock

Stevens Hotel, Third Floor, North Assembly Room

1. Data on the Contest—A. Scott Dowd, Chairman of Contest Committee, Chicago.
2. Presentation of Trophies to Contest Winners—By Henry A. Reninger, President of the National Safety Council and Edward B. Fritz, Publisher of THE PAPER INDUSTRY, sponsor of the contest.

When Industry Comes

Southern Advance Bag and Paper Company Erects Modern Sulphate Pulp and Paper Mill and Bag Factory, and Develops Town to Meet the Needs of the Growing Community

NOT far from the Louisiana country poetized in Longfellow's "Evangeline" may be found the thriving, hustling village of Hodge. A few years ago it was only a saw mill town with a total population of about seven hundred people. Today finds it the home of the new plant of the Southern Advance Bag and Paper Company, and because of this activity, boasts of a population of nearly 2,000 people.

Hodge is in the hill section of Louisiana, in Jackson Parish, about 100 miles east of Shreveport and 50 miles west of Monroe. It is in the center of a large wooded area which for the most part is rapidly growing shortleaf pine.

This pine, it is said, on typical forest lands will increase in volume at the rate of one cord per acre per year, and that a ten year growth period will permit a sufficiently long crop rotation for this species to each pulpwood size. In order to be assured of a continuous supply of timber, a tract of approximately 100,000 acres has been purchased by the paper company and it is from this holding as well as from farmers in the vicinity that the wood supply for the plant is obtained.

When it was decided to locate the plant at Hodge, it was also deemed advisable to purchase the saw mill property as well as the property of the village and that of the Northern Louisiana and Gulf Railroad. This railroad which is about 26 miles long operates between Hodge and Bienville and connects with the Chicago, Rock Island and Pacific, and with the Louisiana and Northwestern. The saw mill after purchase was leased to the operating company which continues to saw hardwood timber into lumber. Their operations give employment to several hundred people.

Community Activities

Before describing the pulp and paper mill it might be well to mention some of the village activities of the Southern Advance Bag and Paper Company. With the entire village under their control, it has been necessary for them to provide for the physical, mental, and spiritual wants of the community.

Appreciating the value of good home surroundings a number of cozy bungalow type homes were built. These homes are rented to the employees for a very nominal sum. In this way the workmen and their families are able to live most comfortably.

Several guest houses were also erected to care for guests of the company. These houses were built facing a park which is not yet fully developed. Any stranger or friend of the company who is privileged to sojourn at Hodge is made to feel at home, and everything is done for his comfort and happiness. When he leaves, he leaves with a desire to remain and the urge to return and enjoy this generous hospitality.

A dormitory for the girl employees was also erected. Here the girls, domiciled together, learn to live with others, and have social contacts that otherwise might not be possible. Good food and comfortable surroundings make for a most pleasant atmosphere in the dormitory life of the girls.

A sufficiently large laundry to meet the needs of the community has been found a valuable addition to the other buildings. This building has been located in the proximity of both the guest houses and the dormitory for their convenience, but work is done for anyone in the community who desires to make use of this service.

A doctor employed on full time has office headquarters in a pleasant little building designed for consultation and emergency work. The building is located away from the noise of the mill and is yet close enough to be readily accessible.

Napoleon once said that an army travels on its stomach, meaning that an army must be well fed to win victories. Realizing the accuracy of Napoleon's trite saying and the need for good food as well as other necessities of life, a general store that had been taken over with the purchase of the property was renovated, increased in size, and departmentalized. Each department now serves the entire community with the best products that money can buy. One of the unusual features of this store is that an ice plant is run in conjunction with it to meet the ice requirements of the entire community.

When the paper mill came to Hodge, a school far too small for the growing community was in use. A new school was built on mill property and then deeded to the parish school board. Although the new school gives instruction only through the grammar grades, it has an attendance of nearly 200 pupils.

There are two churches in the village—a Union Church for those of protestant faith, and a Roman Catholic Church for those of that belief. Through these two churches the spiritual needs of the community are met.

Plans are now under way for the erection of a theatre. Other developments will come as conditions seem to warrant.

Plenty of room has been left for growth and expansion of the town. At present there are approximately 22 square miles within its corporate limits.

Ground was broken on September 5, 1927, at Hodge for the

General view of Southern Advance Bag & Paper Co., Inc., Hodge, Louisiana

The laundry

The dormitory for the girls

Doctor's office

erection of a 100-ton sulphate pulp and paper mill, and bag plant. Construction continued so rapidly that pulp was produced on April 15, 1928, and paper was first made on June 1, 1928. The bag plant was put into operation shortly after this date, and now after the entire plant has been in operation for only a little over a year, construction is again under way in the erection of an additional bag factory unit which will increase the production capacity of the bag plant from about 5,000,000 to 12,500,000 bags per day.

Row of bungalows

Building Construction

From the illustration showing general view of the plant, one obtains a good idea as to the type of building construction. The machine room, jordan and beater room, power house, and boiler house are of concrete, brick, and structural steel with gypsum roofs. The recovery room, caustic room, digestor and diffuser rooms are of concrete, brick and structural steel with corrugated asbestos roofing. The storehouse, including office, machine shop, and electrical shop, bag factory, finishing room and wood room are of concrete, brick and timber construction. Truscon steel sash is used throughout all the various buildings.

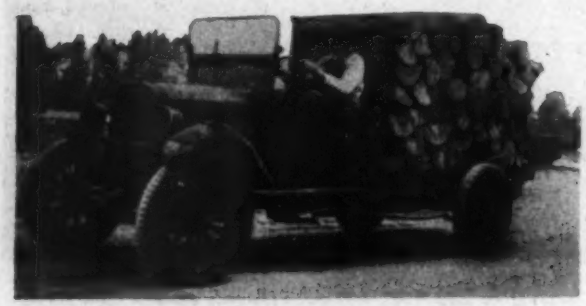
Nine deep wells producing a total of about 5,000 gallons of water per minute are used to meet the water requirements of the plant.

Wood Preparation

All wood is delivered to the mill in 4-foot lengths. Most of the wood is pine although a small percentage is hardwood. The Southern Advance Bag believe in clean cutting a forest tract, and for that reason the utilization of southern hardwoods that are mixed with the conifers is desirable. The wood is delivered to the mill by rail or by auto trucks and is stacked. The hardwood is piled separately from the soft wood.

Two stackers manufactured by the Virginia Bridge and Iron Works of Roanoke, Virginia, and designed to discharge at a height of 41 feet and a horizontal distance of 52 feet are used to store the wood delivered to the mill by rail. The stackers are located on tracks which run parallel to those tracks upon which the cars containing wood would be spotted. In this way the stackers may be moved along to meet either the convenience of the storage pile or the location of the cars. Only enough wood is kept in storage for a several months' supply. This scheme reduces overhead and at the same time decreases the tendency of wood spoilage.

Guest houses facing partially developed park



Auto truck delivering wood to mill

From storage, the wood is delivered by means of a Link Belt wood conveyor to a 12 ft. x 45 ft. Paulson Barking Drum manufactured by Manitowoc Engineering Works, Manitowoc, Wisconsin. This drum is located in the wood yard as close to the storage pile as is conveniently possible.

The barked wood discharged from the Paulson drum is conveyed to the operating floor of the wood room. It is here

View of Paulson barking drum and conveyor to wood room

distributed to one of two chippers, both of them having three knives in an 80-inch disc, where it is reduced to chips. One of the chippers was manufactured by Appleton Machine Works of Appleton, Wisconsin, while the second was a chipper made by Union Iron Works, Bangor, Maine. An individual motor and belt drive is used for each chipper.

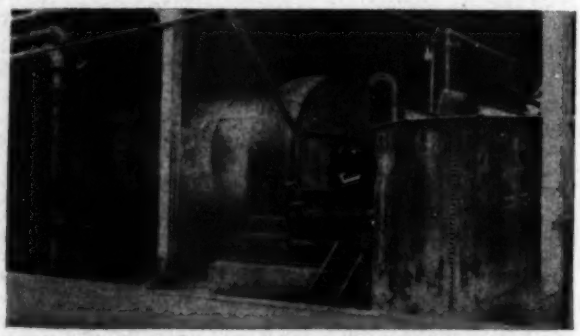
The chips produced in either or both of the two chippers passes to an Appleton Machine Company rotary chip screen to remove fines and oversize material. The screened chips pass to a conveyor for delivery to the chip bin above the digestors, while the oversize material flows to a Carthage crusher where it is reduced in size and then delivered to the same conveyor delivering the uniformly formed chips to the chip loft.

Pulping Operations

The chips from the bin above the digestors drop by gravity into any one of four Blaw-Knox vertical stationary digestors. These digestors which are forged and hammer welded, are designed for a daily capacity of twenty tons each and a working pressure of 150 pounds per square inch. Each vessel has an inside diameter of 9 feet, a length on the straight shell of 28 feet, over all length from face to face of end flanges 33 feet, 1⅝ inches, shell plate thickness 1 inch, head plate thickness 1⅛ inches, and a cubical content of approximately 1900 cubic feet.

The operating floor of the digestor room is not crowded and has plenty of light together with an abundance of natural ventilation to make working conditions as pleasant as possible.

After the completion of a cook, the contents of the digestor are blown through an extra heavy steel pipe to a cyclone above the digestors from which the stock discharges into any one of nine diffusers. These diffusers are arranged in a circle about a stock chest and are equipped with specially designed automatic dumping devices. Such automatic dumping devices permit the completely washed stock to be discharged through the bottom of a diffuser rather than through a door in the side as is common practice. A Naylor spiral pipe arranged to swing on a circle connects the cyclone with the



Allis-Chalmers rotary lime kiln

diffusers. The diffusers are each 10 ft. x 20 ft. and are of riveted boiler plate steel construction. Both the cyclone tank and diffusers were manufactured by Walsh and Weidner of Chattanooga, Tennessee.

The stock chest located within the diffuser circle is of concrete construction and approximately 19,000 cu. ft. in size. The washed pulp from the diffusers, dropped into the chest, is pumped by a Warren stock pump to the knotters. The knotters are located in the wet room on the next floor above the stock chest installation and about 25 feet horizontally from it. The knotter installation consists of three Improved Paper Machinery Company knotters which have found such wide spread use throughout the industry. The knotters have been installed at a height sufficient to permit the stock to flow from them to the pulp screens by gravity.

The pulp screen installation consists of two large Bird pulp screens and three flat screens. The

View showing stackers, causticizing department and digester house with bridge for chip conveyor

Bird screens are operating at about 375 r.p.m. and have screening perforations of .060. Each unit is belt driven through a 75 hp. motor.

The flat screens have 18 plates with .018 cut and are used simply to screen the tailings from the Bird screens.

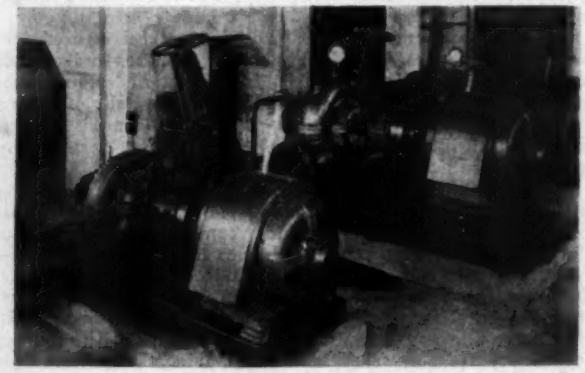
The screened stock is thickened on deckers or wet machines. Three Oliver deckers are installed for the slush stock which drops by gravity into one of two concrete stock chests located above the beaters.

The wet machine installation consists of two Union Works and is used to make lap pulp for storage or shipment.

The stock, therefore, which is pumped from the diffuser stock chest to the knotters, flows by gravity from the knotters, through the screens, to the thickeners and, in the case of the deckers, to the stock chests above the beaters.

Recovery of Alkali

The black liquor from the diffusers is pumped to the black liquor storage tanks which are located outside the diffuser room. From storage the liquor is pumped to a Scott quadruple effect evaporator where it is concentrated to about 35° Beaume. The concentrated liquor then passes to two Walsh and Weidner 9 ft. x 24 ft. rotary incinerators where it is reduced to black ash. The black ash is mixed with salt cake on the floor of the recovery room and the mixture shoveled into one of two double furnaces—each 8 ft. x 16 ft. with a water cooled top. The smelt from the furnace flows into the dissolving tanks. There are two tanks for each of the two double furnaces. Each of the tanks are 12 ft. x 7½ ft. and are of boiler plate steel.



An installation of Warren centrifugals

Three waste heat boilers, Erie City Iron Works, 250 b. hp., are installed with the incinerators and are connected by a system of flues to a heat discharge. The gases from the system pass through one B. F. Sturtevant heat economizer where the B. t. u's. are utilized to heat the boiler feed water and liquor before passing to the stack. The stack is 301 feet high and was built by the Heine Chimney Company.

The green liquor from the dissolving tanks is pumped to six 14 ft. x 10 ft. causticizing tanks. Each of the causticizing tanks is equipped with a lime basket. The lime is stored in a tank above the causticizers to simplify the materials handling problem.

In addition to the causticizing tanks are six settling tanks. These tanks are the same size as the causticizing units. The lime sludge from the settling tanks passes to two Mount filters where the lime mud is recovered. The mud is then recalcined in a gas-fired, Allis-Chalmers rotary kiln. The kiln is 84 ft. long and 7 ft. inside diameter.

To bring the recovery department up to the capacity desired, a second Scott evaporator unit is to be installed.

Construction view showing relative location of Walsh & Weidner rotary incinerators and the waste heat boilers

Construction view showing relative location of Scott evaporators and Walsh & Weidner rotary incinerators

Paper Making

The paper mill houses two Dilts Machine Works beaters, six Appleton Machine Company jordans, two Shartle jordans, and one Pusey and Jones paper machine together with such auxiliary equipment as is necessary for production.

The beaters are individually driven through motor and belt

Pusey & Jones fourdrinier from dry end

and are located in the beater room which immediately adjoins the wet room of the pulp mill. The pulp stock from the stock chests above the beaters drops by gravity in the beaters where rosin size and color are added. The beaters are used largely as mixers. Therefore, the stock is in them for only a short period when it is dropped to one of two concrete chests in the basement below the beater installation. The beater chests are of concrete, are each 16 ft. wide x 32 ft. long x 18 ft. high, and are equipped with horizontal agitators.

The beater stock from the stock chests is pumped to the jordan installation on the floor above. Each of the eight jordans are directly connected to a 350 hp. motor operating at 390 r. p. m. The jordans are installed on the beater room floor in a row adjoining the beaters. The piping arrangement to the jordans permits them to be operated in series or individually as conditions demand.

Bag machines ready for action

The stock passing through the jordans discharges by gravity into the machine chest. At this point the alum is added. It is added to the stock continuously and is used to set both the size and color.

The machine room adjoins the beater room on the opposite side from the wet room and houses the paper machine which receives the stock from the machine chest and converts it into finished paper. This machine, a 240-inch Pusey and Jones fourdrinier, is said to be the world's largest paper machine on kraft papers. At the time the machine was being produced in the shops of the Pusey and Jones Corporation at Wilmington, Delaware, a temporary sign was erected outside the plant for the information of the traveling public. The sign was made the width of the machine being constructed and carried in part the message that they were building the widest and fastest machine to make kraft paper, that the length of the machine was 300 feet, and the weight 1500 tons.

The fourdrinier part is 240 inches wide and is designed for a wire that is 238 inches wide and 80 feet long. The breast roll is 240 inches across the face and is 26 inches in diameter. The table rolls are 10½ inches in diameter and are made from aluminum tubing covered with ¼-inch rubber. The wide guide roll is 16¼ inches in diameter. It was made from steel piping covered with ⅜-inch rubber and is supported by anti-friction bearings. Six special aluminum suction boxes with maple covers and oscillating mechanism together with a 6-inch Millspaugh suction couch, and a 20-inch dandy equipped with a one-inch internal shower pipe constitute other interesting features of the fourdrinier part.

The press part of the machine consists of three presses—the first and second presses designed for belts 50 feet long and for the felts traveling in the forward direction. The third press is for a felt 54 feet long and for the felt traveling in the reverse direction. The three lower press rolls and the first press upper roll are rubber covered, while the second upper roll is granite and the third upper roll is gun metal cased. All felt carrying rolls are rubber covered and are supported by anti-friction bearings. Some of the rolls are 14⅝-inches in diameter while others are 12⅝-inches. The press part is also equipped with a Vickery felt conditioner for the felts on the first two presses.

The dry part of the machine has been designed for the use of two upper and two lower felts with two felt dryers for the first two felts. The dryer section contains one 36-inch diameter receiving dryer, two 48-inch felt dryers, and thirty-six 60-inch paper dryers. Every dryer is equipped with an air vent, a duoliptical dipper, and an adjustable steam joint. The dryer section is also equipped with a Sheahan patent paper carrier.

The calender stack was designed for four rolls—one 18-inch top roll, an 18-inch intermediate roll, a 20-inch next to bottom roll, and a 32-inch bottom roll. The housing, however, was made high enough to accommodate four additional 18-inch rolls. The stack was equipped with a hydraulic lift and for individual gravity, continuous feed lubrication. Warren patent doctors and feeds were also part of the calender equipment.

A Pusey and Jones uniform speed type reel is used for winding the paper. The driving drum is 42 inches in diameter and it operates two reeling drums of Pope patent design. These drums are capable of making 42-inch diameter rolls of paper.

The unwinding stand is equipped with a geared friction device which is water-cooled. The winder drums, 20 inches in diameter, are used with a Murray split shaft.

This large paper machine unit is driven through a 500 hp. General Electric motor which is coupled to the main jack shaft in the basement under the machine room. This shaft carries a large rope sheave grooved for 1½-inch cotton transmission ropes which drive up and down the machine to seven counter-shafts and rope sheaves. These counter-shafts also carry large cone pulleys. These cone pulleys through belts operate corresponding cone pulleys on other shorter counter-shafts. The shorter counter-shafts also carry wide-faced pulleys which through belts transmit the power upward through the machine room floor to wide-faced pulleys on the intake shafts of the various sections of the machine. The vertical belts are slack belts and are stopped and started by electrically operated belt tighteners.

A 250 hp. General Electric motor operates the constant speed shaft of the machine.

The vacuum requirements of the machine, flat boxes and

View of power house showing General Electric turbo-generator units

suction couch, are met through an installation of Nash vacuum pumps, while the Stickles system has been installed on the dryers for circulating steam and exhausting condensate. A Dilts "broke" beater with roll 62 inches in diameter and a 48-inch face is used to handle all broke from the machine. It is located in the basement near the dry end of the machine. The stock from this beater is pumped by a plunger pump to the machine chest. The Nash pumps and "broke" beater are located in the basement along with the paper machine drive. A Farrel grinder has also been located in the basement on a foundation separate from the building at a point where it is convenient to lower rolls to it from the machine above. An overhead crane in the machine room is used for this purpose. Three A. D. Woods machines are installed in the beater room basement as save-alls. On of the machines is linked with pulp mill operations while the other two are for the paper mill.

The paper machine during the past year has been operated over speed ranges from 130 feet to 860 feet per minute and on papers varying in weights from 20 to 100 pounds. The total average production of the machine approximates 90-100 tons per day. About 75 per cent of the production is used for bags, while the remaining 25 per cent is wrapping paper.

With such a large percentage of the paper being converted into bags, it is not necessary to have a large finishing department. The major equipment of the finishing room consists of two 115-inch Beloit rewinders, and one 115-inch Hamblet sheet cutter, one 50-inch Seybold paper cutter, and one 50-inch Camachine.

The Bag Factory

The bag factory is equipped with twenty-eight specially designed bag machines that are producing about 5,500,000 bags in nineteen hours. The machines are producing bags ranging in capacity from ¼ pound to 25 pounds automatically. The line of bags produced include grocer bags, flour sacks, banana bags, etc., and in all cases are 100 per cent kraft. The bag factory at present is cutting up about 65 tons of paper per day and is employing about 100 girls in the department.

The addition to the bag plant that is now in process of construction will permit the output to be increased to 12,500,000 bags per day.

Boiler and Power Plant

The present boiler plant installation consists of three 750 hp., 400 pound working steam pressure boilers designed and built by Hedges, Walsh, Weidner of Chattanooga, Tennessee. These boilers are installed in a separate building adjoining the recovery room and use the same stack as the recovery room.

Natural gas from the Monroe field forty-two miles away, is piped to the plant through a gas line owned and operated by the company. It serves as fuel supply for both the boilers and the rotary lime kiln. A new Hedges, Walsh, Weidner boiler of 1000 hp. capacity is now being installed to meet the increasing demands of the plant.

The steam generated in the boilers at 400 pounds pressure is delivered to two General Electric condensing turbo-generator units, and one General Electic non-condensing unit arranged to bleed at suitable pressures for process workabout 150 pounds pressure for cooking and 25 pounds for supplying heat to paper machine dryers.

All electrical energy required by the plant is supplied by the three General Electric turbine generators.

Personnel

During the period of erection, the construction personnel consisted of C. A. Ring, Chief Engineer; Frank S. Ring, Supt. of Construction; Bruce Suttle, Ass't Supt. of Construction; and G. T. Littlefield, Constr. Engr.

The present operating personnel would include J. E. Kelly, President; John Harvey, Treasurer; Willard Henry, Vice-President; S. E. Michaud, Resident Manager; Bruce Suttle, Pulp Mill Supt.; Frank Monaghan, Paper Mill Supt.; Wm. E. Smith, Bag Factory Supt., and G. T. Littlefield, Constr. Engr. and Purchasing Agent.

You do not have to be superstitious to believe in safety signs.—*Making Paper.*

The Fritz Vertical Hydrator

Organization of the Vertical Hydrator Company, Chicago, as sales agents of the new Fritz Vertical Hydrator was announced last week by E. B. Fritz, Chicago, inventor of the machine, and Love Brothers, Aurora, Ill., manufacturers.

The hydrator is a newcomer in the papermaking machinery field which its sponsors claim may revolutionize the present beating process. Its invention is the result of years of study of papermaking equipment by the inventor, who singled out beating and hydration of the pulp as by far the most important operation in the process and concentrated his efforts toward perfection of this step, according to M. S. Apple, president of the Hydrator Company.

"The work of Mr. Fritz as an inventor assures the indissoluble linking of his name with papermaking," he said, "although like most inventors he has dropped out of the picture with the perfection of his conception. Mr. Fritz is not associated with the manufacture or sale of the machine he invented."

It is pointed out by the sales agents that the hydrator has been in operation under actual working conditions for several months at two northern mills and that it has been entirely tested out and proved before its introduction on the market.

The machine consists of a vertical cylinder about ten feet high and four feet in diameter, inside of which are ten discs mounted on a vertical shaft running past an equal number of stationary discs mounted to the inside wall of the cylinder. Both have tapering bars to provide action, the free space between discs being adjustable.

Pulp enters at the top and moves by gravity through the battery of ten disc machines and emerges at the bottom. The action is a brushing one, and minimum damage to the fibers is claimed. The discs revolve at a speed of 300 r.p.m.

The machine is shaft driven throughout and is said to require a surprisingly small amount of power to operate. According to the sales agents, the hydrator has an action on the pulp never before obtained by any method or combination. A substantial increase in strength has been unvarying during runs on sulphite, and the speed of the machine has introduced a new time factor into the preparation of pulp for the paper machines, Mr. Apple said.

New Company Will Aid Paper Manufacturers

Of distinct interest to the paper industry is the announcement made by the Toledo Scale Company of the activities of their recently formed subsidiary, known as the Toledo Precision Devices, Inc. Its list of products is made up of more than fifty precision instruments and devices, a number of which apply directly to the manufacture of paper. Their use varies from an actual gauging of paper thickness in the process of manufacture to the determination of surface area from weight.

Besides the distribution of these products, an investigation department is maintained where specific problems of paper manufacturers are worked out upon submission. The factory and headquarters of the new company are located in Toledo, Ohio.

The Jeffrey Manufacturing Co., Columbus, Ohio, announces that C. W. Miller has resigned as treasurer of the company, but will continue as a member of the Board of Directors. H. Supp, Jr., formerly credit manager, has been elected treasurer to succeed Mr. Miller. J. X. Farrar, formerly assistant purchasing agent, has been appointed credit manager succeeding Mr. Supp.

New Power Plant at Hamilton

The Champion Coated Paper Company Plans Complete Modernization Program

THE new power plant now under construction at the Hamilton plant of The Champion Coated Paper Company is but one of the many steps toward complete modernization of the "Champion" mills. The Hamilton plant has grown steadily in size since the organization of the company in 1891, but by the passing of three decades so many radical improvements have been made in manufacturing and power-producing methods that the management has adopted a policy which will insure its mills being kept completely modernized.

To systematically carry out plans of modernization in a plant as large as the "Champion", the first step was to organize all mechanical departments under one head. This department, known as the Engineering Department, immediately laid plans for the program in mind. There were many problems to consider both in the mill and the power plant. To get started on the right foot, the John A. Stevens Company of Cleveland, Ohio, was contracted to make a complete survey of the plant and to present recommendations. The report was completed in 1921 and showed that the steam plant at that time consisted of:

8	275	hp.	Heinie Boilers	operating	at	160 lb.
8	302	hp.	B & W	"	"	" 160 lb.
1	825	hp.	B & W	"	"	" 160 lb.
1	1350	hp.	B & W	"	"	" 160 lb.

with a total of 7616 horsepower.

The average electric load carried was in the neighborhood of 2500 kw. per hour for the entire plant. The reason for this small load was the fact that at this time there were four engine rooms and practically all equipment was belt driven from the steam engines. Engines were driving beaters, calenders, fans, pumps, etc., which equipment later was motorized. The generating equipment consisted of two 1500 kw. A. C. Westinghouse generators, 440 volts, 3 phase, 60 cycle, direct connected to H. O. R. Corliss horizontal cross compound engines, size 30" x 54" x 60", installed in 1907, and on Westinghouse low pressure turbo generator, 1875 kv.a. 440 volts, A. C., 1800 r.p.m., installed in 1916.

Improvements Made During Past Decade

Soon work was started installing individual motor drives to supplant the old line shaft drives and the electric load increased accordingly. Additional equipment had to be installed and in 1920 the company purchased a 750 kv.a. 160 lb. pressure Westinghouse turbo-generator, 440 volt, 3 phase, 60 cycle, 3600 r.p.m. with a Le Blanc jet condenser. In 1921 was added another 160 lb. pressure Westinghouse A. C. turbo-generator set rated at 2,000 kw., 2300 volts, 60 cycle, 3 phase, with a jet condenser.

At the same time these changes were being made in the generator room, similar changes were being made in the boiler plant, where the small boilers were taken out and replaced by B & W type M-30 and type M-48 Stirling boilers, equipped with superheaters, economizers, etc. The Stephens-Adamson Manufacturing Company installed a complete coal and ash handling system to replace the old one installed in 1907. A continuous water softening plant, new pumps and other auxiliary equipment was added. As a matter of fact, the boiler plant was a new plant in the old building.

As motorizing the mill machinery continued, it was possible in 1923 to discontinue the use of the largest steam engine in the plant which had been driving the No. 1 mill beater line shaft. This was a H. O. R. Corliss heavy duty, cross-compound engine, purchased in 1901, size 30" x 60" x 60", speed 60 r.p.m., fly wheel 24 feet in diameter with 74-inch face. The belt driving the line shaft was 72 inches wide by 192 feet long. This was replaced by the installation of fourteen 75 hp. and seven 100 hp. motors on the beaters and several motors on washers and Jordans.

Two years later the 28" x 48" H. O. R. Corliss single engine driving calenders and other equipment in the coating mill was abandoned by the installation of nearly fifty motors ranging in size from 50 to 150 horsepower and numerous motors of smaller horsepowers.

By this time, 1925, the average electric load was 7,500 kw. per hour, or three times what it was just five years before, and, another change had taken place in the generator room. In the spring of that year the installation of turbines was completed and put on the line. These were both General Electric Company make, one of them 6000 kw. capacity, operating at 200 pounds pressure and 90 degrees superheat, and the other one 2000 kw., operating on the surplus 15 pound steam from the non-condensing two 2000 kw. turbines. The engine driven generators and the 750 kv.a. turbo-generator were taken out of service and dismantled. It had been necessary to purchase on an average of 1200 kw. per hour from The Hamilton Service Company for fifteen months previous. The total capacity of the generators after the new General Electric turbine installation was 11,500 kw.

In 1927, another large power consuming installation was completed. A Black Clawson fourdrinier paper machine, 172 inches wide, was installed. This was of the sectional drive type, designed by Westinghouse Electric & Manufacturing Company, and was electric driven throughout, requiring approximately 950 kw. per hour. Since that time, five Corliss engine driven papermachine constant speed line shafts have been removed and the equipment driven from the line shaft has been individually motorized. Plans are now under way to motorize the variable speed line shafts.

Special Department Analyzes Power Problems

The power problems of the plant had grown to such an extent that in May 1928, a separate department was established to study existing conditions and recommend to the management what steps should be taken to bring the plant to a higher plane of operation. A complete heat power survey of the entire plant was made with particular attention being paid to the process steam requirements. Enormous quantities of process steam with practically constant demand together with the fact that an average load of 1,100 kw. was being purchased from a local public utility plant prompted the investigation of higher pressures. Preliminary heat balances and thermal efficiencies were calculated for steam pressures ranging from 1400 lb. to 400 lb. The result of these studies showed almost conclusively that the economic solution of this problem demanded a pressure of 650 lb.

By using this pressure only a small percentage of the total electric energy demand must be carried on a condensing basis during the summer months when the process steam requirements are small. During winter months a minor amount of reducing valve action will be necessary to maintain the plant heat balance.

Description of The New Plant

The project will consist of one 27,000 square foot Babcock & Wilcox cross drum boiler capable of producing 350,000 pounds of steam per hour at 650 pounds pressure, 750 degrees total temperature, when operating at 400 per cent centennial rating.

The unit system of pulverized coal firing will be used employing four, No. 5 duplex Riley Atrita mills. The furnace will have a fraction cold of 60 per cent, the water wall surface being about 2,600 square feet. Preheated air temperatures of 500 degrees will be obtained at maximum rating through a 47,000 square foot tubular air preheater. This boiler is the largest ever built to operate at this pressure. Its outline dimensions are approximately 35 ft. square and 80 ft. in height. The present boiler plant will be used for standby service, and the coal and ash handling system

of the new plant will be tied in with the existing facilities.

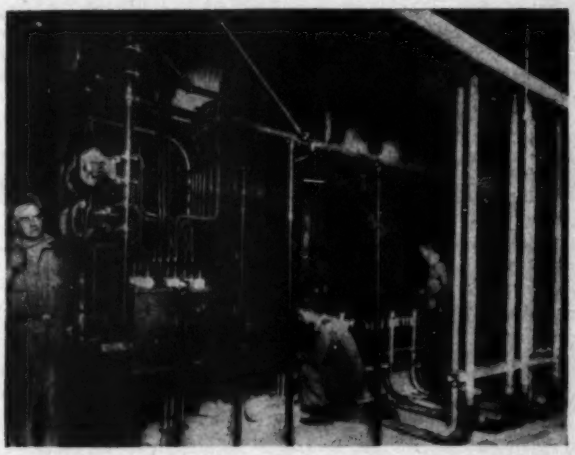
The regenerative cycle feed water heating will be used. Feed-water will be heated in four successive stages, viz: 30 lb. absolute, 80 lb. absolute, 190 lb. absolute, and finally passes through a heat exchanger absorbing heat from the continuous blowdowns. The feed-water will enter the boiler at 370 degrees Fahr. To maintain low concentration in the boiler, approximately 5 to 6 per cent of the total boiler feed-water will be blown down continuously.

The feed-pumps will be driven by a turbine and motor. Under usual conditions of operation the electric drive will be used. The turbine will be carried along by the motor with its governor so arranged that 4 per cent speed variation in the motor will cause the turbine to restore normal pump

View of generator room showing four turbines after completion of General Electric installation in 1925

speed. The motor and turbine will be rated at approximately 500 horsepower each, emergency operation requiring about 750 gallons per minute against 1800 foot head.

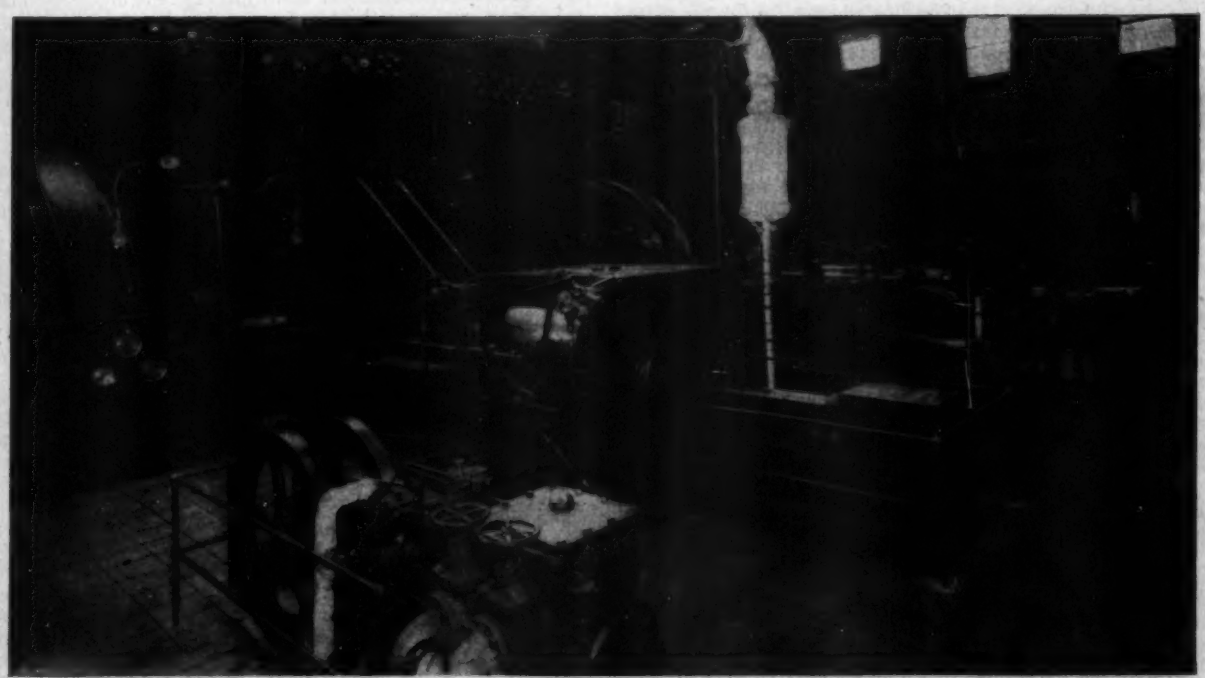
The steam will be expanded to 30 lb. absolute through a 15,000 kw. cross compound turbine manufactured by General



Installing electrical equipment in sub-station for 172-inch four-drinier paper machine installed in 1926. Entire electrical installation was made by expert electricians who are regular employees of The Champion Coated Paper Company

Electric Co. The 7500 kw. high pressure element will exhaust at natural stage pressure varying with the load on the unit. The low pressure element will continue the expansion to 30 lb. absolute. A non-automatic bleeder connection for feed water heating and mill process supplies steam at approximately 80 lb. absolute. For summer operation a third unit, a 1500 kw. low pressure condensing turbine, will continue the expansion from 30 lb. absolute to 2 inches mercury absolute. This, as previously mentioned, will be required to maintain the balance between electrical energy and process steam demand.

The high pressure element is eight stage, non-condensing; the low pressure element is six stage, non-condensing, each machine occupying floor space of 270 square feet. The closed system of generator ventilation will be used. Raw well water will be introduced into the air coolers on its way to a hot process line and soda water treating plant.



View of the engine-generator room before the removal of engines which were supplanted by turbine installations

The ten variable speed steam engines now used for driving paper machines will be replaced by single direct current motors. This also will result in an increased over-all plant efficiency due to the higher economy of the new prime movers.

Present indications are that the new power plant will be placed in operation about February 1, of next year.

Italy's Largest, Most Prominent Paper Plant

The Cartiera Italiana in Turin is known as Italy's largest and most prominent paper plant. It comprises a wood pulping plant in Quarona and the paper mill in Serravalle-Sesia in the province Vercelli. The paper plant developed from a small mill erected in 1561. In the year 1838 a Roberts machine was installed, the first of its make in Italy. The family-owned plant changed in the year 1873 into the ownership of a joint-stock company with a capital of eight million lire. A canal about 2½ miles long was built to carry the water of the Sefia to the plant where it is utilized in three falls.

At present the plant operates with 14 long sieve paper machines, 2 round sieve machines, and a few vats, including the auxiliary machines, calenders, wetting machines, cutters, etc. It covers a floor area of 968,750 sq. ft. and reaches a production of 15,000 tons of fine paper annually. The hollander room is one of the largest in Europe, also the rag sorting plant where more than 200 females are employed. The pulping plant at Quarona covers 215,277 sq. ft. and produces annually 13,228,000 lbs. of dry wood pulp.

The plant produces all papers customary in business, primarily fine papers. The list includes writing papers with and without watermarks, genuine vat papers, drawing papers, blue print papers and photographic papers; also typewriter papers, cigarette papers, papers for luxury editions, art print cartons, ivory cartons, stained papers, etc. The plant also manufactures postage stamp papers, governmental and bank note papers. The bible printing paper of the plant is even exported to England. The concern produces also about 500,000 envelopes daily and upon twenty ruling machines makes annually about seven million school tablets. The envelopes, tablet covers, etc., are printed in the company's own printing plant.

Recently the concern acquired the exclusive rights for Italy to utilize the Baumgartner process for casting pasteboard, and production is to be started soon. Since the output of the plant exceeds the domestic demand, many of the products and specialties are exported to South America, Egypt, Greece, Turkey, France, England, Germany, Austria, and other countries. According to **Papier-Zetung** (1929) 24, p. 816, the present technical director is Cavaliere Donati. The 2,000 male and female employees enjoy the privileges of several socially beneficial developments.

Research Develops Another Use for Cornstalks

At the seventy-eighth meeting of the American Chemical Society which was held in Minneapolis September 10 to 13, a new and simple use for cornstalks was announced. The author of this practical discovery is Dr. A. M. Buswell, professor of sanitary chemistry at the University of Illinois.

The process is the combination of ordinary sewage and plain cornstalks, from which is recovered methane gas usable for heating, for operating autos in place of gasoline and driving engines producing electricity. It is his belief that an apparatus has been worked out which is so simple that it may be installed by any farmer to make his family sewage turn his cornstalks into cheap cooking gas. It requires no machinery; bacteria from sewage do the work. The apparatus is simply a small tank provided with a cover to collect gases. A farmer could produce enough gas to supply the needs of a family of four or five from the material which could be fermented from a gas tank eight feet diameter and eight feet deep. After husking, the cornstalks are dried, shredded with an ordinary shredding machine, boiled and soaked in water or lime.

Dr. Buswell estimates that a circle eight miles in diameter of cornland would produce enough cornstalks to supply the usual gas consumption of a city of 80,000. He also claims the residue left in the tanks after the gas is used is perfect for the manufacture of cornstalk paper, and the corn borer pest is eliminated by the destruction of the stalks.

Paper Investigations by Bureau of Standards

Wet-rub Tester—The wet-rub tester, originally devised by the Bureau of Standards for testing the resistance of paper currency to surface wear, is now available commercially. There is considerable interest in the application of this tester to other products. It has been considered for testing paper towels, blueprint paper, parchment paper, and the like, where surface wear of the paper when wet is important.

Preservation of Publications—The National Research Council has received a fund of $10,000 for a co-operative investigation with the Bureau of Standards on the preservation of publications. The investigation planned consists of surveys in public libraries to find the existing conditions as to the deterioration of publications and to find means of remedying conditions found to be harmful. Consideration will be given to all materials used in books and to the influence of the atmospheric conditions in libraries. Librarians and others concerned with the preservation of valuable records published in book form have noted with considerable alarm the rapid deterioration of many such publications, and there has sprung up a general demand for accurate information that will assist in developing measures to prevent deterioration.

Publication on Sheathing Papers—The bureau Research Paper No. 85, A Study of Sheathing Papers, by F. T. Carson and F. V. Worthington, recently issued, gives the results of a study of sheathing papers made at the request of the National Lumber Manufacturers Association.

In this work thirty-six samples of building papers made by fourteen different manufacturers were examined. The kinds of papers ranged from ordinary wrapping to papers treated with asphalt or paraffin. In addition to the usual strength tests, the papers were tested for water resistance and air permeabiliy. There was a wide difference in all of these properties. It was concluded from consideration of the test data and supplementary information that the thickness is relatively unimportant, that strength is of significance chiefly in handling the paper during erection, that water resistance and impermeability to air are of prime importance in making a wall weatherproof, and that most commercial papers are capable of performing this function sufficiently well.

Frederick C. Cole

Notice has just been received of the death of Frederick C. Cole, Lockland, Ohio, which occured July 24, 1929. Mr. Cole was superintendent of The Richardson Company mill at Lockland for fifteen years, from which position he resigned about six months ago on account of ill health.

Mr. Cole was a member of the American Pulp and Paper Mill Superintendents Association and was actively engaged in its work and many of his fellow superintendents will miss him at their gatherings. A daughter and two sons survive.

General Refractories to Give New Service

The General Refractories Co., Philadelphia, is broadening its scope of service to industrial concerns by selling its Grefco Chrome High Temperature Cement and Standard Silica Bonding Cement through dealers in various localities throughout the country.

These two brands of cement will now be available on very short notice in almost any part of the country, which will improve the company's service to the consumer.

The Strong-Scott Manufacturing Co., Minneapolis, Minn., manufacturer of The Unipulvo System, is at present erecting two additional pulverizers in connection with the second 1350 hp. Edge Moor boiler which is being installed in the second unit of the plant of the Waldorf Paper Products Co., St. Paul, Minn.

ADVERTISING PAGES REMOVED

The Month at Washington

THE new Tariff Bill now being considered by the Senate contains few changes so far as the tariff on paper is concerned when taken in connection with the bill as passed by the House. A new paragraph is added for manufactures of pulp, not specially provided for, to carry an ad valorem of 30 per cent. For uncoated papers, decorated or covered with a design, or produced by lithographic process, the Senate Finance Committee added a 10 per cent ad valorem over the House duty of 4½¢ a pound, and if the above are embossed or printed otherwise than lithographically, a 10 per cent ad valorem is added in lieu of the House 18 per cent ad valorem, thus cutting the duty. Paper wholly or partly covered with metal or solutions and weighing less than 15 pounds per ream, the duty is cut 2 per cent on the ad valorem, the Senate bill calling for an 18 per cent duty instead of 20 per cent as provided for in the House bill, also carrying however a duty of 5¢ a pound in addition in both bills. For labels and flaps, printed in whole or in part in metal leaf the Senate cuts the duty to 60¢ per pound in lieu of the House duty of 65¢. A new paragraph is added for hanging paper, not printed, lithographed, dyed or colored, which carries a duty of 10 per cent ad valorem, and for hanging paper, printed, lithographed, dyed or colored, a duty of 1½¢ per pound and 20 per cent ad valorem. For filtering paper, the Senate Bill carries a duty of 5¢ a pound and 15 per cent ad valorem as against the House Bill of 30 per cent ad valorem. For cover paper, plain, uncoated and undecorated, the Senate Bill cuts the duty over the House bill, providing for 20 per cent ad valorem as against 30 per cent.

Recent Tariff Decisions—The U. S. Customs Court of Appeals has handed down a lengthy decision (T. D. 43531) on the proper duty on old cotton rags, laundered and imported, used in wiping machinery, etc., as properly classified as dutiable under par. 901 of the Tariff Act of 1922, rather than under pars. 1459 or 1457.

Wipers, not washed, consisting of rags, to be made into paper, is more specifically provided for under the duty free par. 1651, as paper stock, rather than dutiable at 10 per cent under par. 1457 as waste, says the U. S. Customs Court in a recent decision (No. 238879-G) (T. D. 43533).

So-called marbelized or surface-coated paper, classified at 4½¢ per pound and 17 per cent ad valorem under par. 1305, was claimed dutiable under the same paragraph at only 4½¢ per pound as lithographed paper for books, and the U. S. Customs Court held that the paper was properly dutiable under par. 1306 as being produced by the lithographic process and used for the inside flyleaf of books or magazines. (No. 304130-G).

Decorated handmade paper, classified at 3¢ per pound and 25 per cent ad valorem under par. 1307, was claimed dutiable at only 3¢ per pound and 15 per cent ad valorem under par. 1307 or at 10 or 20 per cent under par. 1459, but the Customs Court overruled this protest (No. 250390-G).

Wrapping paper classified at 30 per cent ad valorem under par. 1309, was claimed dutiable as cardboard or paperboard at 10 per cent under par. 1302, but the court also overruled this protest (No. 144444-G).

Merchandise classified as printing paper at one-fourth of 1¢ per pound plus 10 per cent ad valorem under par. 1301, was claimed entitled to free entry as standard newsprint paper under par. 1672, but this protest was also overruled (No. 980645-G).

Sales Census—Ambitious plans are going forward in the Census Bureau for taking the 1930 decennial census, which will include an economic sales study of the distribution of commodities, including paper. This nation-wide census is being haled as the greatest piece of team-work between business and Government since the War Industries Board was formed. The number of persons, firms and corporations engaged in various classes of wholesaling and retailing will be counted, the amount of capital invested in each class of business, the volume of sales of different classes of commodities, number of persons employed, salaries and wages paid, rents, etc., in order to make a master analysis of our great sales and distributing machine, which will form a highly important economic study furnishing a vast array of background material rather than a panacea for the increasing burdens of merchandise distribution, which will however help to solve many of the present-day problems.

In recent years, American business has devoted much attention to the problem of reducing costs of production and amazing progress has been made. Nothing has been accomplished however in the chain of merchandise distribution. Although costs of production have been continually lowered, the costs of distribution have been constantly increasing. We hear serious complaints everywhere regarding the cost of getting commodities from producers to consumers. This census will undoubtedly be a forward step in increasing the efficiency of distribution, cutting costs and eliminating wastes.

Interstate Commerce Decisions—Rates on chipboard, pulpboard, boxboard, and other paperboards, in carloads, from Thomson, N. Y., to certain destinations in Mass., was found not unreasonable or otherwise unlawful in a recent decision of the Interstate Commerce Commission (No. 20665), and the complaint was dismissed.

Rates on imported wood pulp, in carloads from Baltimore to Bogota, N. J., was found not unreasonable in another decision (No. 20861), and the complaint was dismissed.

Rates on wood-pulp board, in carloads, from Knoxville, Tenn., to Boston, Mass., and points taking the same rates, were found not unreasonable or unduly prejudicial, while rates from Knoxville to New York City, Philadelphia, and Baltimore, and points taking the same rates, were found unreasonable but not unduly prejudicial, and reasonable rates were prescribed with reparation awarded (No. 19235).

Recent Publications—Volume I of the Commerce Yearbook for 1929, recently released by the Department of Commerce, is a complete and authentic record of the latest developments in trade and industry, and gives a bird's-eye view of American economic life in 1928, covering all branches of industry and trade in the United States, including a comprehensive review of the paper industry, reviewing the underlying basic features of business, with facts and figures and comparative statistics.

The Domestic Commerce Division has just issued a selected reading list on advertising, which is available without charge, containing references to advertising in books and pamphlets emanating from the department as well as numerous non-governmental publications, covering advertising accounting, appropriations, ethics of advertising, national advertising, outdoor advertising, the psychology of advertising, advertising research, retail advertising, typography of advertising, etc.

Photographic Paper, being simplified practice recommendations R-98-29, has just been issued by the Bureau of Standards.

"Credit Extension and Business Failures", and "Preliminary Report of the National Credit Survey" are two reports just issued by the Department of Commerce, giving a concise picture of the factors contributing to business failures, credit policies, credit granting, use of credit bureaus, effect of competition, etc., while the nation-wide survey of retail credit offers many interesting facts and figures for study by

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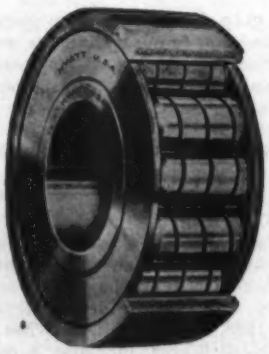
in purchasing Operating Equipment which is HYATT PROTECTED

DEMONSTRATE your far-sightedness. Make sure that the new equipment you buy employs Hyatt Roller Bearings.

The manufacturer who combats friction with Hyatts knows his bearings. This care in bearing selection suggests that the design and construction of the machine as a whole has had competent thought for your protection.



Hyatt Roller Bearings are not only adaptable to new machinery but can be applied to existing equipment due to their construction and ease of assembly.

With Hyatt Roller Bearings at all friction points—in beaters, jordans, fourdriniers, winders and other equipment—you eliminate all bearing difficulties, save lubricant and the time necessary to apply it.

And more, Hyatt Roller Bearings, through their true rolling motion and sturdiness, conserve power and add years to the life of machinery.

Specify Hyatts and get the protection these better bearings assure.

HYATT ROLLER BEARING COMPANY

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HYATT

ROLLER BEARINGS

PRODUCT OF GENERAL MOTORS

the credit man, showing the kinds and extent of credit business being done today, bad debt and credit losses, etc.

Standard Catalogue of Commodities—Varying terms for an identical article it is claimed by the Bureau of Standards causes loss and confusion to American industry, and can only be remedied through the adoption of a standard catalogue. Many articles on the market now go by four or five names, it is stated, and delays and errors in supplying materials thus results. A federal standard stock catalogue is now being prepared to remedy this defect and several sections will be published within the next few months. Misunderstandings in catalogues cause delays and voluminous correspondence, and cause exasperation on the part of the buyer.

Various Services Available at Standards Bureau—The current issue of the Bureau of Standards Monthly contains an illuminating article on the various services which are available to industry on the co-operative plan of research and the solution of industrial problems.

Employment and Payrolls—Employment decreased 0.2 per cent in August as compared with July while payrolls decreased 3.8 per cent, according to data just issued by the Department of Labor. With 1926 as the basis of 100 we find the following changes:

	Employment			Pay-Roll Totals		
	1928	1929		1928	1929	
	Aug.	July	Aug.	Aug.	July	Aug.
Paper and pulp	93.5	95.7	95.4	91.1	97.7	95.7
Paper boxes	90.2	93.2	94.2	94.0	99.7	95.7

Wholesale Prices—Continued upward movement of wholesale prices is shown for August from data collected in leading markets by the Bureau of Labor Statistics. With 1926 as the basis of 100 we find the following changes:

	Aug. 1928	July 1929	Aug. 1929	Purchasing power of the dollar Aug. 1929
Paper and pulp	89.2	88.2	88.2	113.4

Women Workers—The Women's Bureau has just issued a pamphlet on how to keep women workers well, and about the government's job of making industry safe for women, entitled "The Health of Women in Industry". More than 100 references are given in this bibliography.

Mills in Netherlands Operate at Capacity—Paper mills in the Netherlands operated at full capacity in the second quarter of 1929, and paper manufacturers are anticipating increased business. Strawboard plants in particular were well employed.

❖ PACIFIC COAST ❖

WASHINGTON

Coast Section of Tappi Elects Officers

C. R. P. Cash, of the Cascade Paper Co., of Tacoma, was elected chairman of the Pacific Coast Section of the Technical Association of the Pulp and Paper Industry, which was formally organized at the New Washington Hotel in Seattle in June. R. G. MacDonald, secretary of Tappi was present to officiate at the organization of this chapter of the national association.

Other officers, who were elected from the same territory so as to simplify the matter of board meetings, are: R. M. DeCrew, Fibreboard Products, Inc., Sumner, vice chairman; Dr. H. K. Benson, Department of Chemistry, University of Washington, Seattle, secretary. It was decided to hold an executive meeting this summer to make plans for the fall meeting.

In addition to an address by Mr. MacDonald, the members heard a talk given by R. G. MacNaughton, engineer of the News Print Service Bureau and former secretary of Tappi.

Those serving on the nominating committee were: Myron Black, Inland Empire Paper Company, Millwood; Ralph Shaffer, Shaffer Paper Box Company, Tacoma; Harry Andrews, Powell River Company Powell River; A. M. Cadigan, Ranier Pulp and Paper Company, Shelton; and B. T. McBain, Portland. Prof. W. L. Bueschlein of the University of Washington presided at the dinner meeting during the opening and election of officers.

Prospects for New Pulp Mill at Port Angeles

With the view to using the complete tree in the manufacture of a number of grades of wood pulp and other products, The Olympic Products Company, recently organized, is making plans for the erection of a combination pulp mill and sawmill with a daily capacity of about 600 tons, the first unit of 150 tons to be constructed soon, at Port Angeles, Wash.

Actual construction of the mill hinges on the outcome of the voting for a bond issue by the people of Port Angeles which would permit the erection of an industrial water system providing 25,000,000 gallons of water daily from the Elwha River to a site consisting of 130 acres at the old Spruce Products Corp.

Among those identified with the project, according to a report received, are: E. M. Mills, vice president of the Crown Zellerbach Corp.; J. H. Bloedel, president of the Bloedel-Donovan Lumber Mills, Bellingham; Joseph Irving, president of the Crescent Logging Co.; William Boeing, head of the Boeing Airplane Works, Seattle; R. D. Merrill and T. D. Merrill, of the Merrill and Ring organization of logging operators.

Plans are to include four digesters putting out 150 tons of sulphite and other pulps daily in the first unit of the mill. The Grays Harbor Pulp and Paper Mill at Hoquiam, Wash., will probably be used as a pattern in the construction of this plant.

The Crown-Willamette Paper Co. definitely started on the $3,000,000 building program at Camas, early in August. Though the full details of the plans have not been made public it is known on good authority that three paper machines have been ordered, one to replace an older one now in use and the other two to increase the present battery, making eleven machines in all.

Norman W. Wilson, vice president of the Hammermill Paper Co., Erie, Pa., has been spending some time in the northwest. He attended the test runs of the new plant which is just completed at Hoquiam in connection with the Grays Harbor Pulp and Paper Company's plant, where a high grade of bond paper is to be made. W. S. Lucey, superintendent of this new plant, states that commercial production will be under way shortly.

Grays Harbor Mill Shows Profit

A report on the operation of the pulp mill of the Grays Harbor Pulp & Paper Co. at Hoquiam, has just been issued for the past nine-months period by E. M. Mills, president. Net profits amounted to $277,772 after all charges, including bond interest, depreciation and federal taxes had been deducted.

Started originally as a pulp mill project, the Grays Harbor Pulp and Paper Co., now has a paper plant adjoining in which the Hammermill Paper Co. has an interest. This mill is just now making its first test runs and expects to be in full operation next month. Zellerbach officials are largely interested in this project along with some prominent lumber men and the Hammermill company.

OREGON

Umpqua to Have Mill at Gardiner

A new pulp and paper mill will be built in connection with a revived lumber mill at Gardiner, according to announcement on August 20, by W. L. Nederhoed, vice president of the Umpqua Pulp & Paper company, a newly organized concern, with offices in Lumbermen's Building, Portland. This company has purchased the properties of the Gardiner Lumber Co. at Gardiner, including the town site which has a number of residences, a store, post office and other concerns.

Included in the deal is 800,000,000 feet of standing timber. The sawmill will be put in shape to operate probably within 90 days, and the first runs of lumber will be used in building the pulp and paper plant. The total investment runs to about $3,000,000. A site of 53 acres has been reserved for the pulp and paper mill, although this will not be fully oc-

Sealed Valves

MERCO

that won't stick or won't leak

The addition of a small amount of lubricant releases and lubricates the Nordstrom Valve in the event the valve ever becomes stuck. Opening and closing the valve after insertion of the lubricant completely seals the valve against leaks.

The operation is simple. A slight turn of the lubricant screw applies hydraulic pressure up to 2000 pounds per square inch, forcing lubricant through lubricant ducts to a sealed chamber at the base of the plug. The lubricant exerts an upward pressure on the tapered plug and releases it instantly. As the plug is turned in service, a complete film of lubricant is spread over the entire bearing surface. This tends to protect the ground surfaces against corrosion.

The lubricant grooves are so arranged that the line fluid can never be blown out through the lubricant ducts when the lubricant screw is removed. The lubricant screw can be removed and fresh lubricant inserted, while the valve is under pressure and temperature.

"Merco" Lubricants

Special Lubricants are available for use in Nordstrom Valves on lines in the Paper Industry. "Merco" Lubricants are made of the best materials and are prepared in convenient stick form.

Ask for Catalog

Typical installation of Nordstrom Valves on Bleach Liquor lines in Paper Mill.

For the Paper Industry

Nordstrom Valves are in use in many services in the Paper Industry. Included among these are the following:

ACID STORAGE TANK SERVICE
OVERFLOW SERVICE
DILUTE CALCIUM HYPOCHLORITE
RECOVERY ROOM SERVICE
BLOW LINE SERVICE
DIFFUSER ROOM SERVICE
MIXING ROOM SERVICE

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Dallas—Magnolia Bldg.
Detroit—2942 W. Grand Blvd.
El Paso—111 S. Virginia St.
Houston—Petroleum Bldg.
Los Angeles—836 S. San Pedro St.
New Orleans—Masonic Temple Bldg.
New York—11 W. 42nd St.
Pittsburgh—Clark Bldg.
Portland—Guyon Bldg.
San Francisco—343 Sansome St.

Agencies in Principal Cities

Factories: Oakland, California and Belleville, New Jersey
Canadian Manufacturers—Peacock Bros., Ltd., Montreal, Cobalt, Winnipeg, Vancouver.
England—Audley Engineering Co., Ltd., Newport, Shropshire.
Buenos Aires, Argentine—General Electric, Soc. Anon., Victoria 816 Esq. Peru.

Nordstrom *Valves*

cupied by the first unit. The plan on the whole project is to allow for expansion.

This connection with the sawmill is considered to be a most economical combination, as it will permit a complete logging of the land. The fir lumber will be cut into Japanese squares for export and lumber waste will furnish the hog fuel to operate the pulp mill. Hemlock and spruce will be used to manufacture the pulp.

Mr. Nederhoed has been interested in importing and exporting to Japan for about 15 years. He was particularly interested in pulp and paper for the Tokio trade and through these former experiences he expects to build up connections for his new company.

A deep water outlet on the Umpqua river and its tributaries will soon be available. The pulp mill will be a 100-ton sulphate plant.

The Crown-Willamette Paper Co. has experienced much trouble in the recent terrific forest fires which have raged with unusual fury this year. Two or three hundred men have been necessary from the camps of the company to keep the fire under control at all, and considerable valuable timber was destroyed. The forest fire situation is now improved to some extent.

The Sitka Pulp and Paper Co. which has been building a new mill at Empire, Oregon, started making some test runs late in August and will soon be ready for steady production.

Paper Makers Chemical to Build at Portland

The Paper Makers Chemical corporation of Kalamazoo, Mich., will build a new plant in Portland, construction to start at once and completion scheduled for about January 1. The cost of the initial unit will be $300,000, according to W. J. Lawrence, president, who has been spending some time in Portland making a survey of location.

The company operates 22 plants in the United States, Canada and England. The Portland plant will be the first one west of the Mississippi river.

Five expert chemists will be brought from the east to have charge of the laboratories. About 100 will be employed in the plant in the various departments.

Mr. Lawrence stated his industrial analysis showed that Portland was the most central point for large areas of standing timber available for the paper mills, and therefore was the logical distribution center. His company has been supplying chemicals for the northwest mills in the past shipping from the eastern and southern plants. More than 7000 tons of resin will be shipped from pulf ports for the new plant each year.

CALIFORNIA

The Bates Valve Paper Bag Corp., Oswego, N. Y., will build a factory in Los Angeles, work to start very soon, according to report, at a cost of $250,000. The structure will be 160 by 360 feet and will house some modern offices of the officials. W. S. Weaver is district manager.

Eugene A. Breyman, manager of the maintenance and operating departments of the Zellerbach Co., San Francisco, has been on a northwest trip, visiting both the jobbing houses and the paper mills in the principal centers.

The California-Oregon Paper Mill Co. will soon construct new offices in Los Angeles.

BRITISH COLUMBIA

Pacific Mills Plans New Power Plant

Expenditure of approximately $1,500,000 is planned in construction of a standby power plant and other features at the Ocean Falls plant of Pacific Mills, Ltd., in British Columbia. This company is a subsidiary of the Crown-Willamette Paper Co. The new project is planned to prevent recurrence of the costly tie-up suffered last spring when water shortage made it necessary to close down three of the largest paper machines for three months. Partial reconstruction of the plant was decided upon owing to necessity of replacing obsolete facilities.

Net profits of Pacific Mills during the first three months of the current year amounted to $130,733 as against $253,879 shown in the first three months of the 1928 fiscal year. President Louis Bloch stated that the decrease in Pacific Mills earnings was due to the shutdown of a large part of its mills caused by extreme water shortage. The executive added that these units are now operating at normal capacity. Standby generating equipment has been installed in the plants to insure against future recurrence of power shortage.

Balance sheet of Crown Willamette Paper company and all subsidiaries, including Pacific Mills Limited of British Columbia, shows current assets totaling $14,782,707 as against current liabilities of $2,852,138—a ratio of approximately 5 to 1.

During the period covered by the report $264,000 bonds have been retired, according to President Bloch.

WISCONSIN

Continued Progress Among the Mills

Although the paper industry of Wisconsin finds the going hard because of competitive conditions, close margins and low market prices, yet there has been no evidence of anything but progress for many months. Announcements constantly are coming forth of expansions and improvements, and the past month is no exception, although the developments have not been on as large a scale as in some periods.

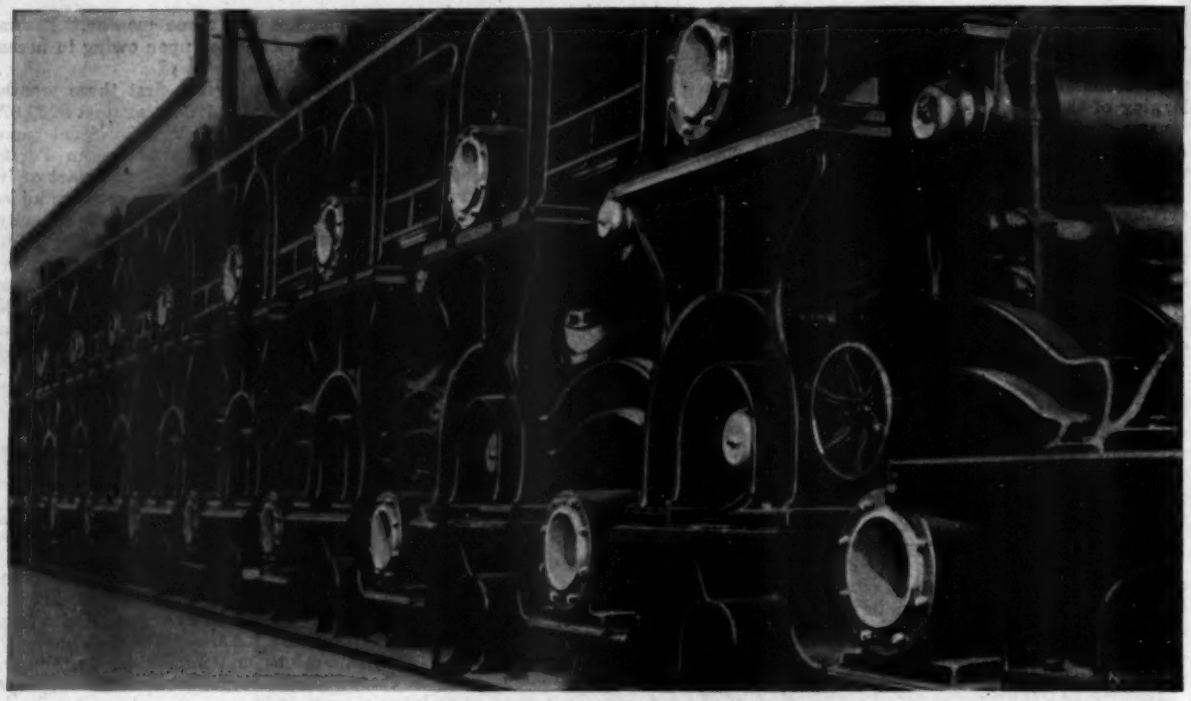
In order better to serve the trade in various parts of the country, the Kieckhefer Container Company, of Milwaukee, is establishing a series of branch plants. The latest installations are at Houston, Tex., and New Orleans, La. These are finishing plants equipped to receive the corrugated board and other container material from the mills at Three Rivers and White Pigeon, Mich., and convert it into cartons according to the demands of the trade in the respective territories. Mills near Philadelphia supply the seaboard cities. Previously, the company had established finishing plants at Oakland and Los Angeles, Calif., Seattle, Wash., and Honolulu. Localized service is possible because of these arrangements, and the company will be able to develop each marketing section intensively.

Evidences of increased production are shown at the mills of the Wisconsin River Valley, where an employment survey indicates a gradual increase in the amount of employment. The Nekoosa-Edwards Paper Company, of Nekoosa and Port Edwards, is using 1,026 men as compared with 907 a year ago. One hundred men also have been added to the company's construction crew. The Ahdawagam Paper Products Company, Wisconsin Rapids, has increased its crew 30 per cent and now uses 80 men instead of 60 because of a growing business. The Consolidated Water Power and Paper Company, Wisconsin Rapids, has added 50 men to its construction crew and also has more men on its mill payrolls than a year ago. The average increase has been 14 per cent.

A second machine has been placed in operation at the Nicolet Paper Company, DePere, to take care of the increasing amount of orders for glassine and greaseproof paper. The company has spent some time establishing its sales and has been supplying the demand with one machine in operation. This is a new organization, headed by W. C. Wing, of Appleton. The company purchased the former American Writing Paper Company mill and converted it to this specialty. About 50 men were added to the payroll and the total force is now 140 persons.

Need for room has caused the Gilbert Paper Company, Menasha, to start work on an addition costing about $55,000. It will be added to the manufacturing section of the company's buildings, giving more operating and storage space.

Another enlargement is taking place at Kaukauna, where the Moloch Machine and Foundry Company is enlarging its foundry so it can go into steel castings. The company has been experimenting with steel castings and decided to expand into this field when a market was found for the output.



1072 TIMKEN BEARINGS

On the largest paper machine in the world, the 304 inch machine built by Bagley and Sewall for the Great Lakes Paper Co., Ltd., there are 1,072 Timken Bearings. The couch rolls, Fourdrinier table rolls, wire rolls, wire guide rolls, upper press rolls, press felt rolls, drier rolls and drier felt rolls are all Timken-equipped.

The friction in this giant machine is reduced to a point where one of the massive rolls, weighing tons, can be rotated by hand pressure. It only required 45 HP to turn the whole drier section over the first time it was started.

TIMKEN BEARING EQUIPPED

Thus the performance of a machine, whose building was a record in itself, is confided to Timken tapered construction, Timken *POSITIVELY ALIGNED ROLLS*, and Timken steel—the unbeatable and exclusively Timken combination of definite superiorities.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

TIMKEN *Tapered Roller* **BEARINGS**

An electric melting furnace is now in use in the foundry.

Filter plants are being built by the Consolidated Water Power and Paper Company, Wisconsin Rapids, at the main mill and at Biron. The finishing room at the former place also is being enlarged. These are the final steps in the company's plan to manufacture groundwood book paper. The new bleach plant, shipping room and warehouse are all finished, and the change soon will be made. The Consolidated company is not going into the book paper field exclusively. Several machines will continue to turn out newsprint to take care of the large list of newspaper customers the company now enjoys. Fifty men have been added in order to speed up the construction work.

An index of prosperity is shown in the action of the Consolidated Water Power and Paper Company in declaring an extra midsummer dividend of one per cent on its stock, payable to stockholders as of record July 31. This means a seven per cent earning at least, because the company always has paid six per cent.

Increased power facilities are desired by the Marinette and Menominee Paper Company, Marinette, Wis., according to an application filed with the Wisconsin Railroad Commission by the Union Falls Power Company, a subsidiary of the paper company. The latter seeks permission to raise its dam across the Menominee river and enlarge it. By increasing the head two feet, the company will have a power reserve sufficient for all time, the petition says, and there will be a surplus for sale to the public. Objections have been raised by farmers who fear their lands will be flooded if this is done.

Mills Damaged by Fire

Fire losses during the last month in Wisconsin paper mills have been more severe than in years. A blaze at the Economy Paper Products Company, Milwaukee, virtually ruined the plant and its contents. The loss was estimated at $100,000, according to W. E. Johnson, general manager. Paper stock consumed amounted to $25,000, and the damage to machinery and equipment was $75,000. The fire started in waste paper which had been swept up when the plant closed down for the day, and when it reached waxed paper, its spread was too rapid for immediate control. The building was of "L" shape, 300 feet long one way and 100 feet the other, and was burning everywhere. The company was about to move to new quarters and new machinery therefore will be purchased.

Another bad fire took place at the Fox River Paper Company, Appleton, Wis., where the finishing rooms of the No. 2 mill were in the path of flames. The blaze started in a frame addition where wooden boxes were stored and worked its way through two stories of the mill. Dryer felts were burned or scorched and slight damage was done to the machinery. Parts of the interior of the building were consumed.

It was necessary for the fire department to use so much water that the storage basement below was flooded, causing ruination of large quantities of paper stored there. The actual amount of the damage has not been determined.

Some paper stock was damaged at the Bergstrom Paper Company, Neenah, Wis., when a motor burned out and set fire to belting of machinery in a warehouse. The total damage was not large.

Although mills of the Westminster Paper Company, Westminster, B. C., were completely destroyed by fire recently, they will be rebuilt at once. This announcement was made by J. J. Herb, president, after visiting Wisconsin and consulting with the stockholders, most of whom live in the state. Most of the necessary arrangements have been made. Mr. Herb formerly was associated with the Thilmany Pulp and Paper Company, of Kaukauna, Wis.

Paper mill capitalists at Wausau, Wis., are increasing their power holdings through a merger of one of their companies known as the Minnesota Northern Power Company with the Montana-Dakota Power Company and the Black Hills Utilities Company. Cyrus C. Yawkey, of Wausau, is president, and R. W. Haskett, vice president, of the Minnesota company. Ben Alexander and other Wausau men also are interested. Common stock of the Minnesota corporation has been split six for one and there will be an exchange with stockholders of the other two companies in order to effect the merger. The capital stock authorization has been changed so the Minnesota Northern now has 800,000 shares of common without par value, 12,000 shares of seven per cent preferred at $100 a share, and 88,000 shares of preferred at a par value of $100 a share. Gross earnings of the three properties will aggregate $2,500,000 for 1929.

Publishers Enjoy Consolidated Tour

Success crowned the unique trade relations venture of the Consolidated Water Power and Paper Company, Wisconsin Rapids. It was a recreation tour of several days' duration conducted early in August under the direction of Burt Williams. Invitations were sent to a large number of newspaper publishers, with the result that 100 from representative dailies of Illinois, Indiana, Iowa, Michigan, Missouri, Wisconsin, Minnesota, the Dakotas, Nebraska and Oklahoma responded.

The publishers boarded a special train at Chicago, stopping at a number of points of interest. These included the capital at Madison, Wis., and the Wisconsin Dells, where a scenic boatride was arranged. The train next stopped at Wisconsin Rapids, where there was a tour of inspection of the Consolidated mills and each step in paper making was shown. A banquet also was served there, with George W. Mead, president of the company, acting as host. Further stops were made at Duluth, Minn. and Superior, Wis., at Brule where some time was spent at the Henry Clay Pierce estate where former President Calvin Coolidge spent his vacation last summer, and at Bayfield and Eagle River. During the tour, President Mead was made an adopted chief of the Chippewa Indians, when a stop was made at Bayfield to witness a pageant there. The name given him is "Gui-An-Ik-Und," meaning "Snow Cloud."

Forestry

Purchase of tax delinquent lands by the state of Wisconsin will not be possible as a reforestation move, because of the veto of a proposed law of this kind by Gov. Walter J. Kohler, His decision was based on a knowledge that too much money would be withdrawn from the general fund of the state, and that the state conservation commission already has rights which would answer the purpose.

Under another bill passed by the legislature a short time ago, there will be a property tax of one-twentieth of a mill to provide funds for the conservation commission. The appropriation for conservation work will total $1,200,000, of which $300,000 will be used exclusively for fire prevention, tree planting and other steps necessary to save the forests for timber and pulpwood.

Wisconsin now has 350,000 acres which will be set aside as a federal forest preserve. An inspection of the tracts was made recently by John E. Burch, of Washington, D. C., secretary of the National Forest Reservation Association, in company with E. W. Tinker, district forester. These sections are known as the Oneida, Moquah and Flambeau districts and will become national forests in about twelve months. Privately owned lands also have been set aside to the amount of 200,000 acres, under the new forest crop law which eliminates taxes until the timber is cut. Of this area, the Nekoosa-Edwards Paper Company, of Port Edwards, Wis., has 31,591 acres planted. Forest fires this summer destroyed about 4,000 acres of timber in northern Wisconsin before the flames could be subdued by a force of 400 men.

A fatal accident occurred recently when Peter Pohlman, a young millwright employed by the Kimberly-Clark Corporation at Kimberly, Wis., met his death in a fall from a scaffold. Anton Larsen, employed at the Neenah Paper Company, Neenah, Wis., suffered severe wounds to his chest and abdomen when caught in an elevator. Joseph Jillek fractured his hip when he fell from a tank on which he was working at the Park mill of the Marinette and Menominee Paper Company, Marinette, Wis.

Organization of the Schulz Shoe Box Company, to take over the activities of the A. George Schulz Company, Milwaukee, paper box manufacturers, was announced August

ANOTHER ONE OF THE 47 MANUFACTURERS OF MACHINERY
FOR THE PAPER INDUSTRY THAT USES SKF BEARINGS

Rice, Barton & Fales, Inc.

YOU MAY BUY A BEARING AS A BARGAIN BUT TRY AND GET A BARGAIN OUT OF USING IT

for

Nothing is apt to cost so much as a bearing that cost so little.

SKF
Puts the Right Bearing in the Right Place

Nearly $10,000 a Year Saving on One Machine Certainly Justifies the Use of SKF Bearings

So many operating advantages and economies showed up as a result of using 344 SKF Ball Bearings on this 156" Fourdrinier that the main story can be told in these few words... SKF is responsible for an annual saving of $9,978.04. Every important location from the line shafts to slitter frame rolls is SKF equipped.

Some of the outstanding features of this installation are... wire life has been increased 31 percent, power costs cut 20 percent, less labor and lubricant needed, and the utmost reliability is present always. Yes... SKF Bearings may cost more but... when their use makes possible such outstanding economies in a modern mill, it certainly pays big dividends to use "the highest priced bearing in the world." A Certified Survey made by independent engineers will confirm these facts. It's free for the asking and without obligation.

SKF INDUSTRIES, INC., 40 East 34th Street, New York, N. Y. 2356

SKF
Ball and Roller Bearings

13 by officers of the new concern. Capitalization of the new company consists of 2,000 shares of $100 par common stock. There will be no public financing. Officers of the new company are: President, R. Hallstrom; vice president and general manager, William B. Rehnquist, formerly general manager of the Manufacturers' Box Company; treasurer and sales manager, Harry E. Davis; secretary, T. Benjamin Thompson.

John M. Johnson, sales manager for the Marinette and Menominee Paper Co., Marinette, died in Chicago August 1, following an illness of several months.

Stock valued at $25,000 was destroyed when a fire of unknown origin razed the building of the Oshkosh Paper Co., Oshkosh, August 9. This was the second local paper plant to suffer damages from fire within the past month. On July 27 the Oshkosh Wrapper Co. was the scene of a fire which did damage amounting to $2,000, all of which was covered by insurance.

MICHIGAN

Paper Technologists Elect Officers

At the regular monthly meeting of the Paper Technologists Club, held August 14 at the Columbia Hotel, Kalamazoo, the following officers were elected: President Elbert G. Milham, Bryant Paper Co.; vice president, Maxwell D. Bardeen, Lee Paper Co.; secretary-treasurer, W. Kent Kidder, Allied Paper Mills. Following the election, Mr. Milham named E. Frank Whittington of the Sutherland Paper Co., chairman of the program committee and C. C. Schneider of the Hawthorne Paper Co., as publicity agent for the club.

Due to the election, there was no regular program planned for the meeting and a round table discussion was held on the subject of dry versus liquid alum in the paper mill. In addition, the general policies and plans of the club for the coming year were discussed by the members. It was decided to make an intensive study of the present methods used in the analysis of raw materials in an attempt to develop, if possible, a standard method for the analysis of each raw material used. All of the laboratories in the valley are planning to co-operate in this work in order to determine which method will give the most accurate results. The first material to be studied will be rosin size.

Sturgis Company to Enlarge Plant

The Harvey Paper Products Co., of Sturgis, has started on the second addition to be constructed within the last eight months. The latest building will be 150 by 40 feet and will enlarge the present floor space by 6,000 feet.

Eight months ago an addition increasing the floor space by 3,000 feet was put up but the increase in activity at the factory has continued to such an extent that the capacity is again outgrown. The company was organized in Sturgis three years ago.

Sutherland Shows Increase for Second Quarter

Sales and earnings of the Sutherland Paper Company in the second quarter of the year show a substantial increase over the first three months, according to L. W. Sutherland, president. Shipments for the first six months of 1929, he states, totaled $2,962,911, a gain of 19 per cent over the corresponding period of 1928.

Of this total the second quarter's business comprised $1,609,629, which was 24 per cent ahead of the same three months a year ago and nearly 19 per cent over the first quarter of the year. Net income of the company for the second quarter, ending June 30, amounted to approximately $120,000, after all charges, including depreciation and federal taxes, according to L. W. Sutherland, president of the company. This showing, equivalent to 39 cents a share on the 300,000 shares of common stock outstanding, compares with net of $39,507, or 13 cents a share for the first quarter of the year. The company's position continues strong with quick assets five times current liabilities as of June 30.

The regular meeting of the Cost and Technical Association of the Paper Industry, Kalamazoo Valley division, was held Wednesday, August 28, at the Maple Hills Golf Club. Dinner was served at 7:30. Following the dinner C. G. Chandler, secretary of the Upjohn Company, spoke on "Progress Along Cost Lines of Drug Manufacturers." He is a member of the American Drug committee and an authority on cost systems. Severens Balch of the Watervliet Paper Company discussed "System in a Book Paper Mill." This is part of a series of discussions on caring for waste.

Frank D. Gilchrist, secretary and paper sales manager of the Watervliet Paper Co., Watervliet, resigned August 10. Fourteen years ago Mr. Gilchrist left Bryant Paper Co., Kalamazoo, to go with Watervliet. He will now return to the Bryant Paper Company as sales manager.

Fall Meeting of the Cost Association

The Cost Association of the Paper Industry will hold its annual fall meeting at Wausau, Wis., on Thursday, Friday and Saturday, September 19-21. The arrangements committee, consisting of A. M. Van Douser, Irene M. Carney, Frank Shemanski and Harry Deyo, report that reservations for the convention exceed the average number. It is urged that members and visitors make early requests for room accommodations at Hotel Wausau, which is headquarters.

The setting of standards will form an important part of the program of meeting. Charles Passmore, of Frazer & Torbet, Chicago, will lead the discussion with an address on "Use of Standards in Paper Mill Accounting".

Another of the contributors of papers and addresses is J. L. Palmer, associate professor of marketing at the University of Chicago. Being a C.P.A., Professor Palmer is familiar not only with marketing, but with all aspects of accounting. He is able to take the accounting viewpoint on the problem of sales and distribution expenses and will address the members on "Accounting for Selling and Distribution Expenses in the Pulp and Paper Industry".

"Financing in Pulp and Paper Mills", is the title of a paper to be read by Newton V. Wagner, or Arthur Anderson & Co., Chicago. Mr. Wagner has had a good deal of experience in this branch of work, so that his message will certainly be one worth hearing.

Everybody realizes the value of the work the technical men are doing, so it is pleasing to know that Allen Abrams, of the Marathon Paper Mills Company, will speak on "Technical Control".

D. Clark Everest has promised to attend the opening session to welcome all to Wausau.

A banquet and dance has been arranged for Thursday evening, September 19. Golf for both men and women is planned for Friday, also bridge for the women after luncheon, and an auto drive to the world-famed Eau Claire Dells.

For the men, in addition to the business sessions, arrangements are being made to permit them to visit any of the local mills. It is also planned that one afternoon shall be given up to golf.

Divisional Meetings of the Superintendent's Ass'n

Plans for the fall meetings of the various divisions of the Superintendents association are now under way and reports received at the secretary-treasurer's office indicate that each one is planning for interesting papers and good entertainment features.

Meetings of the Miami Division will be resumed September 28, when members will gather at the Hotel Anthony Wayne, Hamilton, Ohio.

The regular fall meeting of the Northeastern Division will be held at Bethel, Maine, on October 4 and 5. The usual entertainment features and a very interesting program is being prepared for this meeting.

Dates have not been chosen for meetings of the other divisions, but announcement of these meetings will be made as soon as received.

How much is too much?

Paper and pulp mill operators are finding a new way of cutting costs. They are reducing the yearly bill for lubrication—not by buying cheaper oils and greases, but by paying *more* in many cases than they ever did before—*and using less.*

They are consulting the lubrication specialist to secure the best lubricants available. They are taking advantage of Texaco Lubrication Service and finding out how to use these lubricants.

The results are worth it. Lubricants are being used more economically. Machinery and equipment are being kept in better condition. Maintenance and repair costs are less. Effective lubrication is not a question of quantity so much as it is that of the right lubricant properly applied.

Texaco Lubrication Service brings to you the benefits of The Texas Company's years of experience as one of the world's largest manufacturers *and users* of lubricants. It gives you the free cooperation of lubrication specialists who are authorities on the subject—and it provides a Texaco Lubricant for every known purpose. Write The Texas Company first.

TEXACO LUBRICANTS

THE TEXAS COMPANY, 17 BATTERY PLACE, NEW YORK CITY

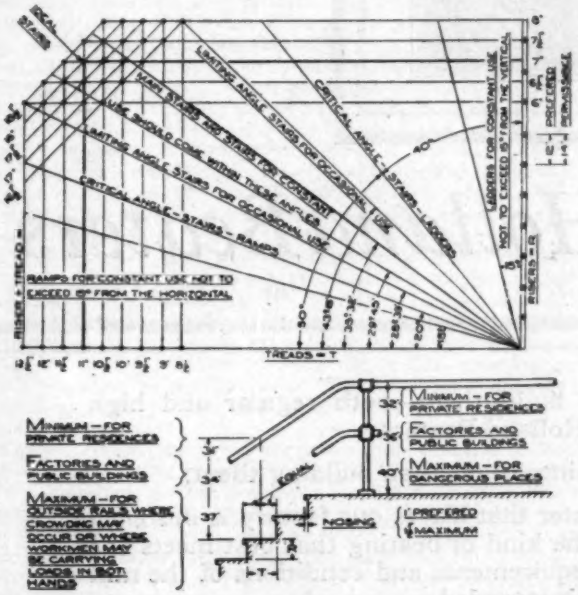
Offices in Principal Cities

Practical Helps for the Mill Man

Stairs, Ladders, Ramps and Handrails

STAIRWAYS and ladders are in almost universal use, and in all probability these two things were among the first peaceful and constructive devices made by human beings.

Laws have been passed in various states laying down rules for the construction of stairways in public buildings, factories and office buildings. The accompanying instructions by


IDEAL STAIRS
LIMITING ANGLE STAIRS FOR OCCASIONAL USE
CRITICAL ANGLE—STAIRS—LADDERS
PREFERRED REMAINDER
LADDERS FOR CONSTANT USE NOT TO EXCEED 75° FROM THE VERTICAL
RISERS = R
RISER + TREAD =
RAMPS FOR CONSTANT USE NOT TO EXCEED 20° FROM THE HORIZONTAL
TREADS = T

MINIMUM—FOR PRIVATE RESIDENCES
FACTORIES AND PUBLIC BUILDINGS
MAXIMUM—FOR OUTDOOR RAILS WHERE CROWDING MAY OCCUR OR WHERE WORKMEN MAY BE CARRYING LOADS IN BOTH HANDS
NOSING
PREFERRED
MAXIMUM
MINIMUM—FOR PRIVATE RESIDENCES
FACTORIES AND PUBLIC BUILDINGS
MAXIMUM—FOR DANGEROUS PLACES

Jerome R. George, vice president of the Morgan Construction Co., Worcester, Mass., and published in The Shop Review, cover not only stairways, ladders and ramps, but also handrails, and are submitted for the guidance of those responsible for the details of the construction of these devices.

1—The heights given for rails on both platforms and stair-runs are about 1 inch higher than the most convenient height for the average person, but for safety reasons have been so adopted.

2—The rail on the going-down side of a stair-run should be about 3 inches higher than the rail on the going-up side, but ordinarily the rails should be made the same height on both sides for practical reasons and the preferred height given has been established having this point in view.

3—Rails next to walls may safely be set lower than outside rails.

4—Rails on high platforms in dangerous situations should be set to the maximum height of 40 inches except in special cases.

5—As a general rule, handrails should be placed on both sides of all stairways.

6—Note that railing post at top of stair-run must be set back a considerable distance from edge of landing to avoid reverse bend in rail.

7—Within the shaded area given on the chart for stairs in constant use, risers may be varied from 6 inches to 7¾ inches and treads from 9¾ inches to 11¾ inches. Good, safe stairways cannot be made outside of these limits for use by people of average American size.

For stairways used principally by grown-up persons, the sum of the riser and tread should be between 17½ inches and 18½ inches.

For stairways used principally by children, the sum of the riser and tread should be about 16½ inches.

Steps 7 in. x 11 in. will be found extremely easy and safe for general purposes.

8—As far as possible, all stairways in a given building should have exactly the same riser and tread.

9—All stairways having long runs of say more than 15 steps should be broken up by landings. Spiral turns on stairways should not be employed except in very special cases, but are to be preferred to excessively steep runs in combination with flat landings. When spiral turns must be used, the center from which the treads are struck should be well inside the turn so the treads will not come to a point. This will involve tapering one or two treads on the straight run. The city building ordinance of Worcester prohibits the use of "winders" in factories, office buildings and in stairways serving more than three apartments, and in no case are more than three treads permitted in a quarter circle.

10—Stairways are extremely dangerous unless the bottom and top steps are well lighted. If these parts of a stair-run do not receive daylight, they should be artificially lighted and if likely to be used much at night, permanent 24-hour lights should be provided which cannot be turned off except by the electrician in charge. Wherever possible, steps and landings should have a distinctly different color.

11—Safe headroom for a tall person wearing a hat requires minimum of 6 ft. 10 in. measured vertically from any tread.

12—Short ladders in daily use and all long ladders should be fitted with safety cage with continuous and smooth back.

Care of Rubber Rolls

A RUBBER covered roll must receive proper care if it is to give best results on a paper machine. Rubber is of vegetable origin, and is effected by extremes of heat, light, or cold. A rubber covered roll, therefore, when not in use should be stored in a cool, dark, damp place. A room or space where the temperature is maintained between 50° and 60° Fahr. is desirable. A roll should be removed as far from the dryers as possible. If a roll is kept in storage for several months or more it is imperative that the roll be carefully examined before using on a machine for checking or oxidation on the surface. A magnifying glass may be helpful in such an examination since it is not always possible to detect surface checks with the naked eye. Under proper storage conditions, a rubber roll can be held for five or six months without appreciable depreciation. However, a careful inspection before placing a roll in surface is essential. Grinding a roll at this time, should it be needed, would eliminate trouble and expense later. A check roll is not only injurious to the felt clothing but is also injurious to the paper which is being produced. A rubber covered roll should never be left resting on its surface. A roll in this position will flatten out at point of contact. A roll not in use should be kept in a roll box and carried on the journal supports. It should also be kept in a covered box to eliminate the action of light. In operation, care must be taken to keep oil and grease away from the roll, and kerosene should only be used sparingly, if at all on the machine. The pressure on the roll must be evenly applied and lever weights should be kept even. If the weights are removed from the front of the machine, they should also be removed from the back side. When washing up, all weights should be removed from the roll, especially when the felts are "roped". Care should also be taken to see that a roll is properly crowned. As soon as the crown is incorrect, the roll should be ground. Proper care of a rubber covered roll will manifest itself in greater productive life, less trouble on machine, and lower production costs.

High Speed and Holland Beaters

YES, we build them—both regular and high speed Holland Beaters.

But more important than building them:

Every beater that leaves our factory is *designed* to provide the kind of beating that best meets the individual requirements and conditions of the mill for which it is intended.

Just as all methods of paper manufacture have improved and are improving, so has the manufacture of Beaters improved. We believe in better methods because they reduce costs, improve quality,—and increase profits.

If you believe there is room for improvement in the efficiency of your beating, we shall be glad to combine our experience with yours in bettering the quality and lowering the cost of your beating operations.

A letter of inquiry will bring you any information you desire. Address the Valley Iron Works Company, Appleton, Wisconsin.

OTHER VALLEY EQUIPMENT

- Jordan Engines
- Beaters, Breakers, Bleachers and Washers
- Flat and Rotary Screens
- Screw Presses
- Voith High Pressure Stock Inlets
- Centrifugal and Stuff Pumps
- Laboratory Equipment
- Stock Valves — Gate and Plug
- Stock Consistency Regulator
- Special Machinery

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New York Office: 350 Madison Ave.
Western Mfg. & Sales Div.: Smith & Valley Iron Works, Portland, Ore.

Canadian News

Newspaper Situation Reflects on Newsprint Industry

In an interview in Toronto last month, L. R. Wilson, vice president and managing director of Abitibi Power and Paper Co., pointed out in regard to the general newsprint situation that the mills were only supplying the demands of the market through working close to capacity. According to the News Print Service Bureau, during the month of July the Canadian news mills operated at 84.8 per cent of rated capacity and turned out 229,045 tons, and during the first seven months of this year they produced 194,680 tons, or 14 per cent, more than during the same period of last year. The question of making an adequate supply when the demand shall have reached the higher figure that manifestly is impending will soon be a vital one. While he did not say so in so many words, it was evident that he had in mind the question of mill extension, which has been quiescent of late. There has been a definite tendency to avoid consideration of this matter, but there may be more than one project mapped out in the minds of financial parties, if not in the offices of architects. He did, however, express the opinion that newsprint prices at the present time are too low.

Paper makers are not able to make a wide enough margin of profit, though stocks have manifested a disposition to creep upwards of late. After the depression last winter, and the relatively low rate of operation, there are many long-term contracts made at too low prices, and those contracts have to be fulfilled throughout their terms of life, creating a static condition in the newsprint market, which cannot be conducive of very much expansion, and it is not very attractive to investors.

The cheerful antithesis of this rather drab situation in the paper-making realm is to be found in the inordinately optimistic situation in the newspaper publishing field. Newspapers of all classes are prosperous; they are making money, and it is the advertising increase which is responsible for their making money. The newspapers have learned to make their advertising pay more money by increased lineage as well as by more skilled selling policies and enhanced rates. Advertising persists in requiring more and more space, and as it grows in volume newspapers consume more and more newsprint, and their demands on the mills increases.

As regards the reported mergers pending in the industry, it is accepted generally that further considerations are not only likely but have actually been under consideration for some time. In so far as concentration of mills, power resources and timber and pulpwood supplies are concerned, economies in this direction have gone almost as far as is possible in the mergers which have already been effected during the past two years; further mergers, accordingly, will be consummated with the end in view of stabilizing market conditions rather than with an eye to additional economies. Merger developments may not come within the next few months, but that they are more or less definitely planned appears evident.

P. G. Stipping, who had been superintendent of the woods operations at Howley, Newfoundland, for the past four years, has been appointed District Superintendent at Deer Lake. His place has been taken by H. J. Hansen, of Norway, who was at one time superintendent for the Anglo-Newfoundland Development Co. at Millertown.

In the mid-year review of water activities in Canada, Honorable Charles Stewart, Minister of the Interior, indicates the progress of hydroelectric development since he issued his annual statement at the beginning of the year. A number of developments have been completed and placed in operation, good progress has been made in construction on a number of undertakings of major importance, and new projects of magnitude are in prospect in many provinces. In the first half of the year new developments together with additions to existing plants have added almost 200,000 horsepower to the total installation in the Dominion, while undertakings are under way which, when completed to their designed capacities, will involve a total installation in excess of 2,000,000 hp.

Corner Brook, Newfoundland, was visited recently by three of the ships of the Atlantic Squadron of the Royal Navy, the sloop "Heliotrope" and the cruisers "Capetown" and "Despatch". During their ten days' sojourn, dinners, dances and entertainments of all sorts were the order of the day. Through the courtesy of their commanders, the ships were open for inspection at different times, and a large number of the townspeople availed themselves of the opportunity to inspect the vessels.

Canadian Interests May Join Forest Products

At a meeting of the Joint Administrative Committee of the Pulp and Paper Research Institute, which was held in Montreal a short time ago, consideration was given to the matter of Canadian pulp and paper companies joining with the United States Forest Products Laboratory at Madison, Wis., in an elaborate project for the study of groundwood. Director Winslow of the Madison Laboratory and C. C. Heritage were present to discuss the project and propose a basis for joint action.

There was full discussion of all phases of the matter, with the result that the committee delegated Superintendent McElhanney of the Forest Products Laboratories at Ottawa, and E. P. Cameron, director of the Pulp and Paper Division of the Montreal Laboratory, to visit Madison to ascertain definitely what arrangements for the proposed co-operative work could be made and report back, with recommendation regarding financial support. The sentiment of the Administrative Committee was that probably this committee would be able to make a report which would be considered so favorably as to cause the Administrative Committee to recommend that the association co-operate with the Madison laboratory in the matter.

The Woodlands Section Executive Committee held a meeting last month to consider plans for the annual meeting in January next, and decided upon some departures from the usual customs. The meetings of the section will be held on Monday and Tuesday of the week of the annual convention of the association, January 27 and 28. This course is to be taken to avoid clashing with the meetings of the Technical Section, which heretofore have been held concurrently, thus creating confusion and inconvenience for those members belonging to both sections.

The Joint Administrative Committee of the Pulp and Paper Research Institute has granted E. P. Cameron, director of the Pulp and Paper Division of the Forest Products Laboratories of Canada, a month's leave to enable him to visit the Pacific Coast and acquaint himself with conditions there in the pulp and paper industry.

◆ QUEBEC ◆

Canadian Paperboard Earnings Down

The financial statement of the Canadian Paperboard Co. for the year ended March 31st, 1929, shows an increase in sales from $1,777,014 last year to $1,950,747 this year; cost of goods sold, however, shows a larger increase, with a resultant decrease in gross profits, which are shown at $255,-

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P. 57

819 as compared with $287,286 last year. After deduction of salaries and expenses, and sundry expense and discounts, profits for the year before providing for depreciation and bond interest were $174,088. Bond interest took $77,721 and depreciation $40,000, leaving net profits available for dividends at $56,357 as compared with $95,074 in 1928. The balance sheet shows an increase in total assets from $3,741,990 last year to $4,591,629. An increase in land, buildings, etc., account is mostly responsible for the large increase in total assets.

According to president, J. G. G. Kerry, the falling off in revenue arose mainly from the difficulties attendant on putting into operation the new mill in Toronto and the increased charges due to its construction, but not directly charged thereto. The new Toronto mill was first turned over in the early part of October, 1928, and it was gradually brought up in production until by the end of the fiscal year it was producing paper at the anticipated rate and with the expected economies. During this period of initiation there were the usual mechanical difficulties to be overcome and the usual high costs of production to be gradually reduced to normal figures.

The gross production of the mills of the company during the period April 1928 to March 1929 was 34,812 tons, as against 30,770 tons for the previous period. At the present time, the mills are in a position to produce approximately 55,000 tons of board per annum and at a cost lower than the production costs at any time since the beginning of the period of activity arising out of the Great War. It is not anticipated that the market will immediately absorb all the increase in the company's productive capacity, but it is expected that the three large mills in Toronto, Montreal and Frankford will be kept busy.

The Lake St. John Power and Paper Co. is proceeding with the construction of a 20,000 hp. hydroelectric plant at one of the company's power sites. At the present time, power is supplied from the Duke-Price Power Co. on a favorable long-term contract, but the paper company has two power sites capable of developing 50,000 hp.

Canipco News

A mortgage by the Canadian International Paped Co., to the Royal Trust Co., of Ottawa, covering a debenture issue of $100,000,000 was filed in the Hull registry office by an attorney for the paper company. The blanket mortgage covers all the holdings of the company at Gatineau Point, and in Ottawa. The first debenture issue of the series, one of $25,000,000, is of special interest in view of the fact that it ranks with the largest, aside from government flotations, of the present year, either in Canada or the United States.

G. J. Lane, formerly at the Pyrites, N. Y., mill of International Paper Co., has been appointed assistant manager of the Gatineau mill of Canadian International Paper Co.

His Excellency Viscount Willingdon, Governor-General of Canada, and Lady Willingdon, were recently entertained at Anticosti Island by George M. McKee, vice president and managing director of Canada Power and Paper Co., president of Port Alfred Pulp and Paper Corp., vice president and managing director of St. Maurice Valley Corp., president of St. Maurice Valley Sales, Ltd., and president of the Anticosti Corp., and Mrs. McKee, together with some of Mr. McKee's business executive associates.

Donnacona Diversifies Output

Donnacona Paper Co. will break into a new field this autumn with the production of a new wallboard product. The plant is now being prepared, and, according to an official of Price Bros., which controls the company, the product is expected to make its debut on the market some time this fall. The plant will have a daily capacity of 150,000 square feet, and the addition of this new factory will diversify the company's output materially.

As far as the rest of the Donnacona plant is concerned, it continues to operate at capacity. It has maintained practically a 100 per cent ratio of operations during the year, and there are substantial orders on hand which should keep the company busy for some time to come.

The death of Frank Howard Wilson, president of J. G. Wilson, Ltd., paper merchants and bag manufacturers, occurred last month at his summer home at Lake Brulé, Ste. Agathe des Monts, and Montreal loses thereby a veteran business man and a prominent citizen. For some time he had been in ill health, and had retired from the directorates of which he was a member about a year ago; but he did not sever connections with the company which was founded almost 60 years ago by his father and which bore the latter's name. He is survived by his wife, a son, two daughters, two sisters and a brother.

According to a press report, the Keyes Fibre Co., Inc. of Waterville, Me. is planning the erection of a new mill at Hull. The plans call for a group of units estimated to cost about $275,000, with equipment. This firm was the pioneer in making pressed pulp plates, etc.

The Laurentide Division of Canada Power and Paper Corporation intend operating in the Upper Ottawa district this season and will take out between 25,000,000 and 30,000,000 feet of lumber, employing about 300 men. The mill at Pembroke, Ont., was not operated last season, the first since control of the properties passed from the W. C. Edwards Co. to the Canada Power and Paper Corp. It is understood that the Hawkesbury Lumber Co., Hawkesbury, Ont., will not take out any logs this season as the company has been taken over by Canada Power and Paper. The plans of the latter in regard to operations in that area have not yet been definitely stated.

ONTARIO

Steady expansion of the sales volume of the Moore Corporation, since the consolidation of its three subsidiaries, may result in a net earnings record of $1,000,000 for the current year, it is learned. The earnings, it is said, are now running at the rate of approximately $2.40 per share, after deduction of income taxes and the amount necessary for preferred dividends, as compared with the official estimate of $2.27 given for 1928 earnings. Though the company is being adversely affected to some extent by the poor crop conditions in Western Canada, the general trend of business with the concern has been markedly upward. Many new fields are being opened up for the company's chief product, which consists of business forms, and this, according to an officer of the company, will readily offset the small loss of business in the western division.

John Bourke, of the resident engineer's office at Espanola, has left to accept the position of resident engineer with the Thunder Bay Paper Co., of which W. J. Hussey is manager.

A new manufacturing plant is to be erected on Wellington St., Hamilton, by the Canadian Corrugating and Container Co. of that city, which has purchased from the Canadian National Railways 220 feet of land on that street for the purpose named.

George W. Brown, formerly sales manager of Firstbrook Boxes, Ltd., Toronto, has been appointed secretary-treasurer of that company in succession to A. H. Vanderburg who had been with the company for close on to thirty years and has now retired. Mr. Brown, who is well and favorably known in the paper box trade, has been associated with Firstbrook Boxes for about four and a half years.

Dr. G. I. Hoover, research fellow in the department of cellulose and industrial chemistry at McGill University, has been appointed director of the chemical department of the Howard Smith Paper Mills, the laboratory being located at the Cornwall mill of the company.

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Dr. Hoover obtained his B.A. and M.A. degrees from the University of Toronto, where he was instructor in the department of engineering chemistry. His Ph.D. came from Cambridge University, England, where he received part of his scientific education. By arrangement, Dr. Hoover is to continue his work at the Pulp and Paper Research Institute, to complete some lines of work he has begun.

On page 867 of the August issue, a news item was published making reference to the Northern Foundry & Machine Co., Ltd., Port Arthur. The correct address of this company is Sault Ste. Marie, Ontario.

The Board of Directors of International Combustion Tar & Chemical Corp., New York City, announces the election of Geo. E. Learnard as Chairman of the Board, succeeding F. J. Lewis; of Dr. Walter Runge as president succeeding W. H. Lewis; and of Grant Thorn as vice president in charge of sales. The two retiring officers have resigned due to pressure of other business activities.

The annual picnic of the Alliance Paper Mills, Merritton, was held recently at Queenston Heights. The morning program consisted chiefly of soft ball games and, in the afternoon, in addition to regular games and races, a number of novelties were introduced which provided great amusement. The prizes were presented by K. S. Maclachlan, general manager of the company. The most important event of the day was a presentation to A. G. Natwick, general superintendent of the company, who is leaving the service. As a token of esteem, the employees gave Mr. Natwick a beautifully engraved gold wrist watch. The picnic was the most successful ever held in the history of the company.

J. B. Larkin, of Montreal, has arrived in Toronto and, from the office of Kilgours, Ltd., will spend several months coordinating the sales and stock handling of the various branches of the Howard Smith Paper Mills and of Canada Paper (Wholesale), Ltd. Mr. Larkin is head of the Federal Paper Co., Montreal, which is one of the subsidiary organizations of the combined companies, and is widely known in paper circles throughout the country.

The Spruce Falls Power and Paper Co. is undertaking the erection of several new buildings at Kapuskasing, and will expend more than $200,000. Fifteen additional houses are being put up, which will be sold to married employees, each house to cost $6,000. There is also being erected a new three-story staff house to provide greater accommodation for the single men employed, while an extension is being added to the present large service building. Contracts for the construction of the various buildings have been awarded to Hill, Clarke and Francis, of New Liskeard.

At a meeting held some time ago, the provisional board of directors of Canada Paper Wholesale, Ltd., resigned, and the following permanent board was elected: H. B. Donovan, Toronto; F. Willment, F. J. Campbell, J. B. Larkin and E. K. Robinson, Montreal. Officers of the company are: H. B. Donovan, president and managing director; F. Willment, vice president; G. A. Hayword, Toronto, secretary-treasurer; R. H. Dandridge, assistant secretary-treasurer.

The new head office building of Provincial Paper Ltd., on University Ave., Toronto, looks to be rapidly approaching completion, and is to be ready for occupation by the 1st of October. The new office building now being constructed at the Port Arthur division of the company will also be ready for occupation about the same time.

◆ NEW BRUNSWICK ◆

Dr. C. C. Jones, Chancellor of the University of New Brunswick, has announced the appointment of J. Miles Gibson, B. Sc., a graduate of the University of New Bruns-

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Thus the capacity of the beaters is increased 100% and the power per ton of paper is reduced more than 30%. Add to this your better quality of pulp and you have real profitable economy.

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Built to fit the job—Big production results from the special design and is insured by rugged dependable construction. The specially designed U-BARS of high carbon steel are joined securely to heavy ship channel rings with *multiple-rivet* joints —thus effective, clean barking.

Smooth rotation is the result of chain suspension with guide-rolls, sprockets and spring takeups of shock absorbers—hence *faster* rotation and BIG PRODUCTION.

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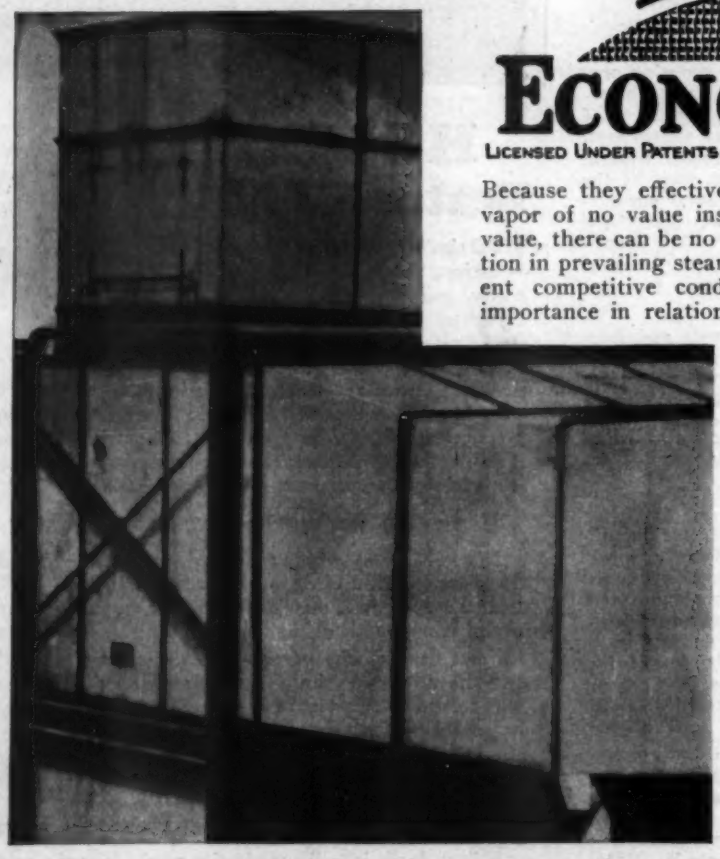

Because they effectively produce needed heat with waste vapor of no value instead of with steam of considerable value, there can be no other result than a substantial reduction in prevailing steam costs. And steam cost under present competitive conditions, is an item of tremendous importance in relation to the final cost of paper making.

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wick, as professor of forestry. The new chief of the Forestry School was a member of the class of 1919 and graduated with high first class standing in that year. He enlisted for overseas service during the spring of 1916 and returned to the university to resume and complete his course in the autumn of 1918. Since graduation he has been employed by the Forestry Department of the Province of British Columbia, and his work has been most highly commended by the officials of that province.

NOVA SCOTIA

Construction work on the mill of the Mersey Paper Co. has advanced rapidly during recent months. The large group of buildings are being constructed of the finest Nova Scotia red brick, practically all of which work has been completed. The large paper storage dock has been finished and steel workers have commenced to erect the supporting steel for the paper storage building. The walls of the boiler house and turbine room are well on toward completion, and the walls of the offices, stores, machine shop, grinder room, sulphite mill and blow pit rooms are finished. To the north of the water tower, the three large concrete acid towers are rapidly rising. Some of the equipment has already been placed in the mill, and all evidence points to the mill coming into operation according to schedule.

A very sad accident occurred some weeks ago when C. H. Wright, president of the Minas Basin Pulp and Paper Mills, was killed near Windsor, N. S., when his automobile was struck by a locomotive. Four other members of his family lost their lives in the same accident.

MANITOBA

Several Winnipeg companies operating stationery businesses in Western Canada have been merged into a new corporation known as Willson Stationers and Envelopes, Ltd. The main company in the new organization is the Willson Stationery Co., incorporated in 1904, and carrying on a retail stationery and office equipment business with stores in Winnipeg, Brandon, Regina, Moose Jaw, Saskatoon, Edmonton and Calgary. Other firms are: Winnipeg Envelope, Ltd., with an envelope manufacturing plant in Winnipeg; Silvester-Willson Co., which owns the five-story building occupied by Willson Stationery in Winnipeg; Mitchell-Foley, stationery and office equipment, Vancouver.

Winnipeg is to have another paper plant, which will turn out corrugated and fiber board, as well as other paper products of various kinds. John Martin, who is widely known in paper circles throughout Canada and was for years a successful wholesale paper merchant, is head of the new concern, known as the Martin Paper Products, Ltd., which will erect the mill. The property secured is 300 by 250 feet, with track siding which will accommodate seven cars of outgoing and incoming shipments. Additional machinery for other lines is now under consideration by the directors. Their interest in selling will be largely confined to territory west of the Great Lakes, and from general appearances the plant should be in operation about October 1st.

ALBERTA

Establishment of a pulp and paper mill at Calgary is believed to be projected for the near future. Charles E. Elms, of San Francisco is preparing to visit the Alberta city for the purpose of organizing a company to build and operate a pulp and paper mill near Calgary. According to Mr. Elms, $1,500,000 would be sufficient to provide a 60-ton plant, and capital for operating. He is endeavoring to acquire timber lands containing more than a half a billion feet.

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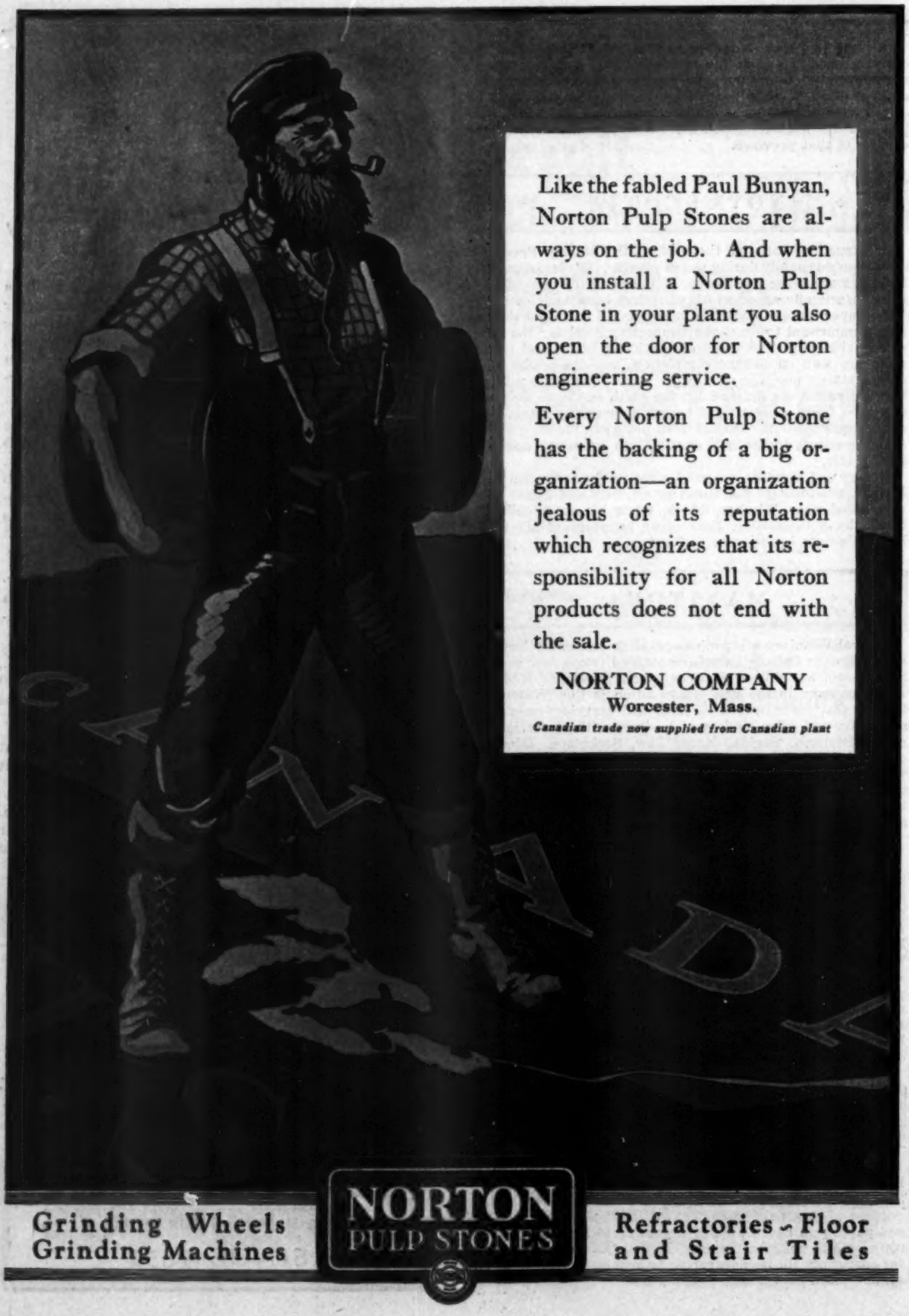

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◆ BRITISH COLUMBIA ◆

Prospects for an early start on the Fraser River Pulp and Paper Co.'s proposed paper mill at Prince George are bright according to information received at Victoria by Hon. F. P. Burden, Minister of Lands. It is understood that a thorough survey of markets, both British and foreign, is being prosecuted before final steps towards actual realization of the project are taken. This survey is now well under way, and the results to date have been very encouraging.

Westminster Mill Will Probably be Rebuilt

Until such time as J. J. Herb, president and general manager of the Westminster Paper Co., has consulted with Eastern Canadian and United States shareholders of the company, no official decision will be announced as to whether the concern will rebuild in New Westminster. It is generally understood that a new plant will rise from the ashes of the old ruins, and it is known that the company has been considering plans and costs of rebuilding, but no forecasts as to what will be finally agreed upon will be released until the head of the firm arrives in the east and meets shareholders there.

The paper mill was enjoying prosperous times when the fire occurred, and was operating 24 hours a day. The order sheet was sufficient to warrant a feeling of optimism among the local shareholders and officials.

The company has another plant at Bellingham, Wash., and this is now operating 24 hours daily, and all surplus stock produced is shipped to New Westminster to assist in filling the orders on hand at the time of the fire.

The opening days of August witnessed unusual activity at the port of the Powell River Co. On one day three large freighters were docked at the wharves loading newsprint for widely separated points. The S. S. Texada was loaded with newsprint for San Francisco, while the West Cactus was loaded for Buenos Aires and the Point Gordo for Texas and Port Columbia. In addition to this, all the regular shipments were made to Vancouver and to Seattle. Over 3,000 tons were loaded in four days, which is an unusually high average for newsprint. On one day alone over 1,100 tons were handled on the docks, which is believed to be a record loading for a paper cargo, at least on the Pacific Coast.

The plant of Pacific Mills, Ltd., at Ocean Falls, is being reconstructed, and before completion there will have been an expenditure of about $500,000. Partial reconstruction of the plant was determined upon owing to the necessity of replacing obsolete facilities, the larger part of which were acquired from the Ocean Falls Co., Ltd. The appropriation will also cover the cost of standby power equipment which will permit full production being carried on at all times. A recurrence of the water shortage, which curtailed the output of the mills during the early months of the year, will not in future affect production, as the standby plant will be kept in readiness to supply power at short notice.

Powell River May Have 1,000 Ton Mill

If Powell River Co. wins its fight for water power rights at Lois River Gordon Pasha Lake, near Stillwater, it will probably proceed at an early date with the establishment of a new unit that will give the combined mills of the company a daily capacity of 1,000 tons of newsprint daily.

At present the company operates six machines, four of which are comparatively old and produce no more than the new machines installed about two years ago, which doubled the output. It is estimated that the power available from development of the Lois River Gordon Pasha site would provide energy for four additional machines, which would have the effect of again doubling production. This would give the Pacific Coast the first 1,000-ton mill in the world. But it is still undecided whether Powell River Co. will be awarded the rights to develop the Lois River site.

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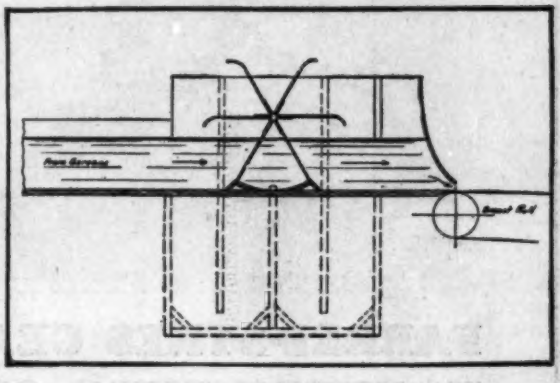

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No "Eddies" or cross currents can possibly travel from screens to slice; All are effectively smoothed out by slowly moving blades which extend entirely across the pond.

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No dead corners for lumps and slugs to accumulate.

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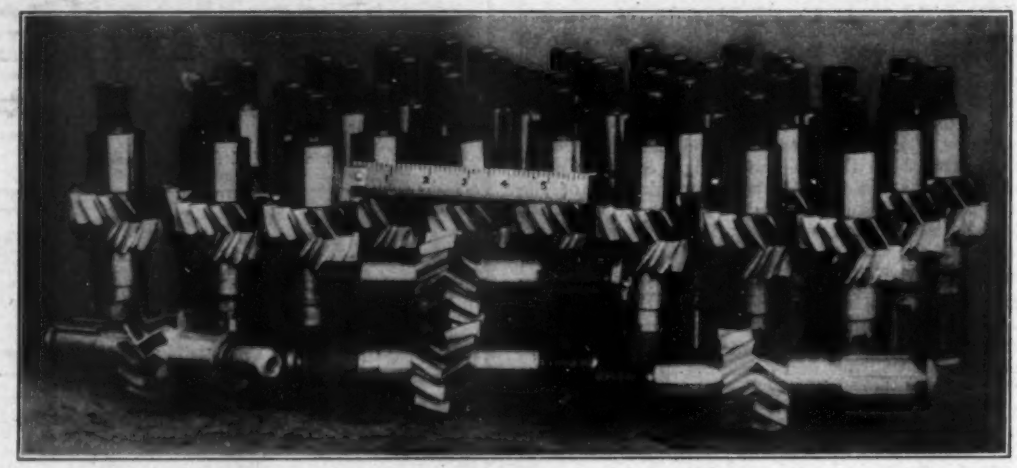

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GEARS UP TO 200" DIA. 27" FACE, 12 D. P. TO 75 D. P. AND UP TO 120" DIA. 54" FACE

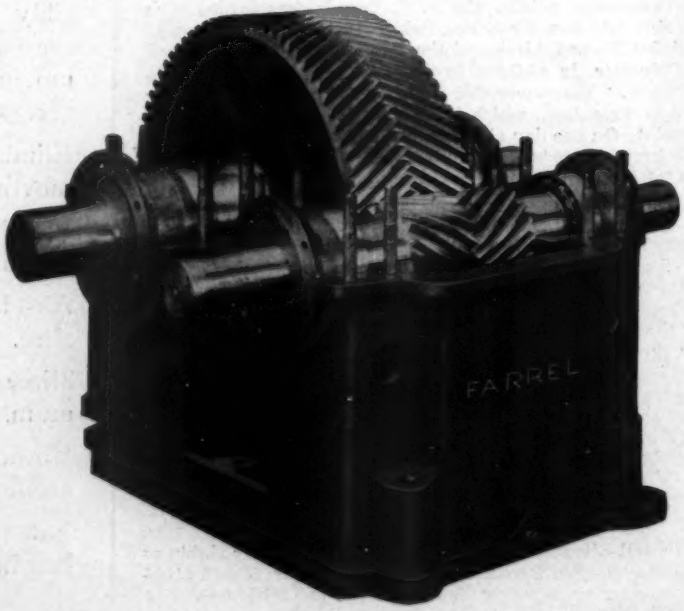
MILL PINIONS UP TO 54 FACE 75 D. P. IN CAST STEEL, FORGED STEEL OR ALLOY STEEL NORMALISED OR HARDENED AND TEMPERED

REDUCING OR INCREASING SPEED UNITS TO TRANSMIT UP TO 5000 H. P. AT ANY PRACTICAL SPEED

TWO-SPEED DRIVES AND SPECIAL ENGINEERING WORK OF ALL DESCRIPTIONS

EVELLER PINIONS SMALL ENCLOSED UNITS FOR CONVEYOR DRIVES DRAWBENCH DRIVES, ETC.

Take advantage of our Engineering Service. We may have solved your Particular Problem.



FARREL-BIRMINGHAM CO., Inc.

SUCCESSOR TO
FARREL FOUNDRY & MACHINE CO., ANSONIA, CONN., AND
BUFFALO, N. Y., AND BIRMINGHAM IRON FOUNDRY OF DERBY, CONN.
ADDRESS REPLIES TO THIS ADVERTISEMENT TO BUFFALO PLANT
344 VULCAN ST., BUFFALO, N. Y.

ENGLAND

News of the Industry

Slow, steady progress has been made by the paper industry during the first half of this year, which has been a period of unusual difficulty. Development has been most apparent in the newsprint and wrapping paper sections. Newsprint mills are producing to capacity, and home consumption is rapidly approaching the 1,000,000 tons a year mark, but home production is considerably under three-quarters of this amount, of which a fairly heavy tonnage is sent to Australia and New Zealand. There are signs of a steadily increasing consumption of newsprint, not only in this country but in every quarter of the British Empire.

There has been relief in the wrapping section in the knowledge that the tariff is likely to run its course, for on the strength of the imposition of this tariff, much work has been undertaken that is likely to improve the prospects of this section. The wrapping section is also on full output. Woodfree mills are moderately busy with a fair home demand, and the usual foreign competition. There has been an improved home demand for esparto, and the mill owners have increased the price in proportion to the increased cost of the grass. Prices and prospects of grass have not improved at all, so that there is no likelihood in the near future of a return to the original level of paper costs.

There has been some difficulty experienced in arriving at a basis of price adjustments by the coated mills whose body papers contain varying percentages of esparto grass, and no definite announcements have yet been made that any price basis has been arrived at.

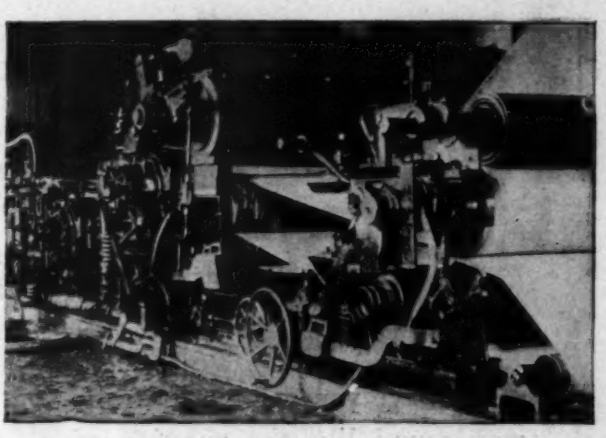
Plans for New Mills—It is reported that, in order to safeguard their interests in the Northern industrial centers, Eric V. Bowater, in association with Lord Rothermere and Lord Beaverbrook, has projected a scheme for building a super paper mill for the production of newsprint near Ellesmere Port on the Manchester Ship Canal. The site which is forty acres in extent will afford ample room for the building of a mill to take six machines, and has been chosen on account of its accessibility by road, rail, and water. The mill is to be known as Bowaters Mersey Paper Mills, Ltd., with a capital of over one million pounds.

Another big newspaper project is for a mill at either Hull or Goole for the supply of papers for the journals owned in the north by United Newspapers, Ltd., and Provincial Newspapers, Ltd., the chairman of which companies is Mr. William Harrison, already well known as the chairman of the Inveresk group, and of Illustrated Newspapers, Ltd. The first section of this mill will be for two machines making paper up to about 270 inches wide, with all the necessary subsidiary plant and buildings. The site is to be on the waterside and will be sufficiently large to allow for future extensions.

These two developments mark a further step in linking up the big consumers of newsprint with the makers of the paper. Most of the principal London dailies—both morning and evening—have been combined into powerful groups, and with these are associated some of the more important of the provincial publications. The leading paper mills are now linked up with one or the other of the leading daily or weekly newspapers, and between them these mills produce a big percentage of the newsprint made in this country, leaving a few outside the combines to supply the wants of independent newspaper publishers.

It is estimated that the present consumption of newsprint in this country is about one million tons a year, and the total production does not exceed 700,000 tons. When the two new mills are ready in some eighteen months time, they will produce 100,000 tons between them, but probably by then consumption will have still further increased, and we shall still be dependent upon foreign supply to the extent of 300,000 tons.

The Inveresk Paper Company has purchased twenty-four houses in Musselburgh for its workers, and the nominee for the first house is the widow of a man with long and faithful service. Mr. William Harrison explains that it is his wish



"There's nothing like it for felt washing"

UNTIL six months ago, a certain New Jersey mill, making rope, jute and glassine paper, was having difficulty with felt washing. The cleaning material used failed to get felts really clean; did not rinse away freely.

Then Oakite was introduced for washing both the old and new felts. So perfectly does this effective material work that the superintendent says he has never seen anything like it. In less time, with less effort, quick-acting, free-rinsing Oakite gives "the cleanest felts they have ever put on the machines."

You, too, can be assured of absolute cleanliness and longer life for felts washed in this safe, powerful detergent. An Oakite Service Man, ready to show you, is nearby. Write us and he will call. No obligation.

Oakite Service Men, cleaning specialists, are located in the leading industrial centers of U. S. and Canada

Manufactured only by
OAKITE PRODUCTS, INC., 16A Thames St., NEW YORK, N. Y.

OAKITE
TRADE MARK REG. U.S. PAT. OFF.
Industrial Cleaning Materials and Methods

What have you got in your cellar?

Something For Mill Managers To Look Into

WHAT have you got in your cellar? may sound like the question of a Volstead Act sleuth, but when your water supply starts drying up and then turns muddy and gets filled with vegetation and other undesirable matter it's time to do a little investigating in your cellar or the other cubby-hole where your filters are located.

Everything may be okay—because you have a good installation of Norwood Filters with a man operating them who is onto his job. But if you have an obsolete installation that was put in when you were only producing half as much tonnage—if you have an operator who "never looks under the hood as long as the engine keeps running"—if you have just kind of forgotten your filters because they do give you so little trouble—why this dry summer, with its extra pollution of water, is the time to check up on those filters.

Maybe you only need new sand or other supplies, and we'll gladly supply you. Maybe you are sorely in need of additional capacity or entirely new filters. We'll send an engineer to discuss these with you, and we'll make the addition or new installation—that's our job. But if the treasurer is using surplusses to take "fliers on the market" instead of laying them up for a needed filter installation or addition—well, showing him the cellar is your job. After your investigation we'll be glad to cooperate.

Norwood Engineering Co., Florence, Mass.

NORWOOD

Filters, Calenders, Platers, Dusters, Rag Thrashers, Folding Machines, Suction Boxes

that when old workers, who had rendered faithful service to the company, were carried away, those left behind should not find the directors wanting in the hour of need.

Sir William F. T. O'Connor C.S.I., C.I.E., C.V.O., chairman of the Amalgamated Wallpaper Mills, Ltd., stated at the Ordinary General Meeting of the company that negotiations had just been completed for the acquisition on very favourable terms of a third wallpaper factory, and that this new purchase was one of the oldest established and best equipped in Europe. All the company's factories were employed to their utmost capacity. Already the company was the owner of two complete wallpaper printing factories which between them had thirty-six printing machines, together with a full complement of other machines necessary for the production of wallpapers of every description. In addition they were the owners of one of the oldest-established and best-equipped base wallpaper manufacturing mills in Europe which was fully occupied in supplying the needs of their own wallpaper printing factories, and also other important contracts.

A recent report from New Zealand points out that the market for imported paper and stationery is of growing importance. Imports of newsprint have increased in quantity each year since 1924, rising from 337,910 hundredweight to 461,450 hundredweight in 1928. The market for unprinted wrapping paper is of considerable value, but, the report points out imports are obtained almost entirely from Canada, the United Kingdom share of the trade being negligible. Cardboard, pasteboard, strawboard, and other boards are required, total imports in 1927 being valued at £101,800, of which the United Kingdom share was worth £22,595.

Imports and Exports

Below are set out the values of the various paper trade imports and exports during July together with the increases or decreases as compared with the corresponding month of the two preceding years:

IMPORTS

	July, 1929	Inc. (+) or Dec. (—) as compared with 1928	Inc. (+) or Dec. (—) as compared with 1927
Papermaking Materials	1,252,983	+391,326	+159,716
Paper and Cardboard...	1,608,388	+183,197	+329,753

Quantities of same articles imported:

	July, 1927	July, 1928	July 1929
Wood pulp, tons	136,779	106,329	167,728
Paper, cwt.	1,346,238	1,552,205	1,851,247

EXPORTS

	July, 1929	Inc. (+) or Dec. (—) as compared with 1928	Inc. (+) or Dec. (—) as compared with 1927
Papermaking Materials.	171,444	+48,780	+49,701
Paper and Cardboard...	940,392	+171,833	+266,579

Quantities of same materials exported:

	July, 1927	July, 1928	July 1929
Papermaking Materials.	13,963	17,648	20,853
Paper and Cardboard, cwt.	298,951	370,361	605,847

Heavy Demand for Apmew Machinery

The American Paper Machinery and Engineering Works, Glens Falls, N. Y., is compelled to enlarge its new factory and install additional equipment to take care of the increasingly heavy demand for APMEW paper mill machinery. The new factory built last year by this company has been unable to take care of orders received, and the company has been assisted by the Glens Falls Machine Works and Sandy Hill Iron and Brass Works in taking care of its customers.

At the recent annual stockholders meeting, a review of the company's business for the past year revealed that it had expanded to an international scope. Fifty-one APMEW Timken Screens have been sold in Sweden, Finland, Germany, France, Japan, Mexico, Canada and the United States. Fifteen of these were repeat orders. This is an interesting record for the first year's operation.

ORR FELT
costs are felt the least

Any felt that will last several days longer than the general run of felts saves a bit of expense worth consideration. And in the course of the year's production the saving becomes a factor of prime importance, — for money saved is profit made....

Orr Felts, on a test with competing makes, averaged nine days longer service. Figure nine days more to the felt on your year's run, cut the figures in half if you will. Either way, the saving is important. Then call for an Orr representative.

A complete line — an Orr for every machine requirement

Orr Felt & Blanket Co.
Piqua, Ohio

ORR
FELTS

From father *to* son *to* grandson.

Away back in 1858, two young men, Asa Shuler and J. W. Benninghofen formed a partnership for the manufacture of paper making felts.

The grandsons of those two men are still making felts, now known as Hamilton Felts.

Three generations of experience! Seventy years spent in making felts!

It is this experience that marks the difference between ordinary felts and Hamilton Felts. It is this experience that determines what a Hamilton Felt should be. It dictates the wool to be used, the proper mixture of it, the method of carding, of weaving, the number of threads to the inch—in short, it dictates the entire process. Naturally the result is a better felt—one that has the proper strength in combination with great water removing qualities; that is going to produce more and better tonnage; that is going to save in steam and overhead costs; that's going to wear longer; that requires less down time for washing; that will make money for you. Try *one* Hamilton Felt. There is one to fit your individual needs exactly. Give it every test of use and performance you think a felt ought to have. Then put Hamilton Felts on all your machines.

Hamilton Felts are marked by two blue lines full width of the felt and by one shorter blue line midway between them

Ask the Hamilton Felt man—a practical felt man who knows paper making as well as making felts to fit individual mill conditions. Most likely he calls on you regularly. If you prefer, write to us direct.

Shuler & Benninghofen, Hamilton, Ohio

The Miami Woolen Mills
ESTABLISHED 1858

Hamilton Felts

NEW YORK CITY

Marked Growth of International Paper Co.

According to an announcement issued by the company, the total assets of the International Paper and Power Company and subsidiary companies as of June 30 last were $649,365,000. Of this, $548,208,000 was in fixed assets, $353,158,000 represented by electric power and utility properties, and $195,050,000 by paper and pulp properties.

The rapid growth of the company is shown by the fact that the present assets are over six times the $102,102,000 in assets of the International Paper Company and subsidiaries on December 31, 1924, practically all of which was represented by paper and pulp properties. In the four and one-half years which have elapsed, the expansion program now nearing completion has resulted not only in strengthening the company's position as a maker of paper and pulp, but also in raising it to the position of one of the leading producers of electric energy on the Continent.

Four kraft pulp and paper mills in southern United States have been constructed and purchased, and another will soon be in operation; a newsprint paper mill has been built in Quebec, another in the same province has been doubled, a third has been acquired in Newfoundland, and a fourth is nearing completion in the province of New Brunswick; twenty hydro-electric plants in Canada have been built or purchased, and control of the New England Power Association has been acquired, giving the company a total hydroelectric capacity installed or in course of construction of over 1,200,000 horsepower, and a steam-electric capacity of 477,500 horsepower.

Production of paper and pulp by the company rose from 434,000 tons in 1924 to 1,173,000 tons in 1928, an increase of 170 per cent.

To Reopen Luzerne Mill

The Luzerne Paper Corporation's mill in Hadley, N. Y., which was closed down early in August when a petition in bankruptcy was filed by the company, giving liabilities of $230,000 and assets of $125,000, will be reopened by the receivers, William H. Redlein and George Hatt. The mill manufactures container, chip and specialty paper boards and mill wrappers, and has a capacity of 100,000 pounds a day. J. F. Auer is president.

The receivers have announced that as soon as raw materials are received at the mill, all equipment will be set in motion on a full time basis, and that the employees will receive back pay.

Ward R. Howard, vice president of the Howard Paper Co., Urbana, Ohio, and of the Maxwell Paper Co., Franklin, Ohio, sailed from New York on the liner Bremen on August 23 for a tour of Europe. While abroad, Mr. Howard will visit Howard bond agents in Belgium, Holland, Italy and England. He intends to combine business with pleasure, and will visit several other countries in addition to those mentioned.

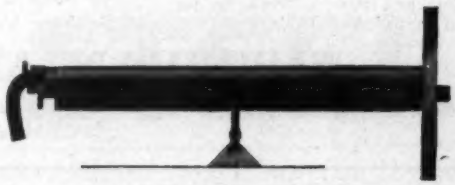
The Analomink Paper Co., North Water Gap, Pa., has opened a New York office in Room 805 at 110 West Thirty-fourth street, with Frank H. Preble, sales manager of the company, in charge.

Frank E. Dunaway, widely known in the wood pulp trade and among paper manufacturers throughout the country, is now associated with Parsons & Whittemore, Inc., pulp and paper importers and exporters of 10 East Fortieth street, New York, in their wood pulp department. Mr. Dunaway has spent many years in the pulp-selling trade.

The Wilson Paper Stock Co., Inc., 452-454 West Nineteenth street, New York, one of the foremost packers of paper mill supplies in the metropolitan area, has announced plans for the erection of a large new addition to its plant which will enable it to materially increase its output. The

SCOFIELD FELT CONDITIONER

The Scofield Felt Conditioner is a device designed to meet the needs of the paper industry. It is the result of years of concentrated study of the requirements. Its performance is guaranteed.



A dirty felt is a liability; a clean felt is an asset.

With the Scofield Conditioner you can keep your felts clean continuously. Dirty streaks and spots can be removed quickly and efficiently.

Many mills are using this method of felt conditioning. It is being used on machines making all grades of paper from tissues to boxboard.

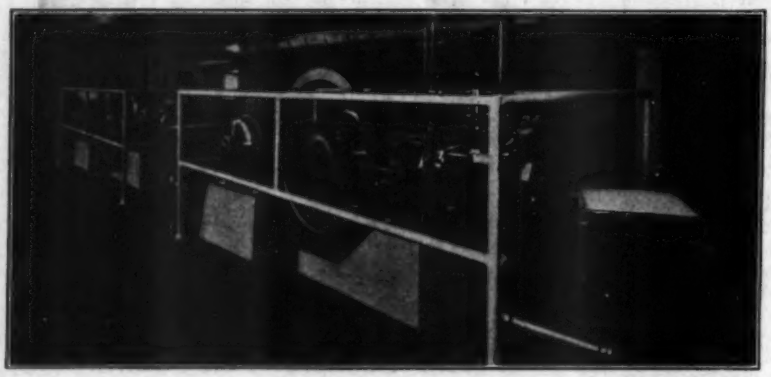
Give us an opportunity to review your felt trouble.

We will gladly send you complete particulars upon request.

GILBERT J. SCOFIELD COMPANY, INC.

408 No. Pearl St.
ALBANY, N. Y.

150-ton Kraft Mill Cuts Costs many ways with low-cost air power from Sullivan Compressors



Two of the three Sullivan single stage belted compressors, at work for the Brown Paper Mills, West Monroe, Louisiana

THREE Sullivan Air Compressors run 24 hours a day, every day in the year, in the Brown Paper Mills of West Monroe, Louisiana.

For the low cost air power now available with Sullivan Compressors, has stimulated search for new ways to use it.

Paper is conveyed over the large rolls in starting, and after a break, by air, instead of hazardous hand labor.

In the filtration department air cleans filters quickly—obviating the need for occasional shutdowns.

Air atomized "Black Sulphate Liquor" in the recovery room, is passed through gas furnaces which reclaim sodium salts to be used again.

Numerous tools about the mill are also operated by air.

Sullivan Air Compressors known for their ability to compress air at minimum power and maintenance costs—are available in capacities from 68 to 5100 cu. ft. per min.

If you are using compressed air, send for these catalogs:

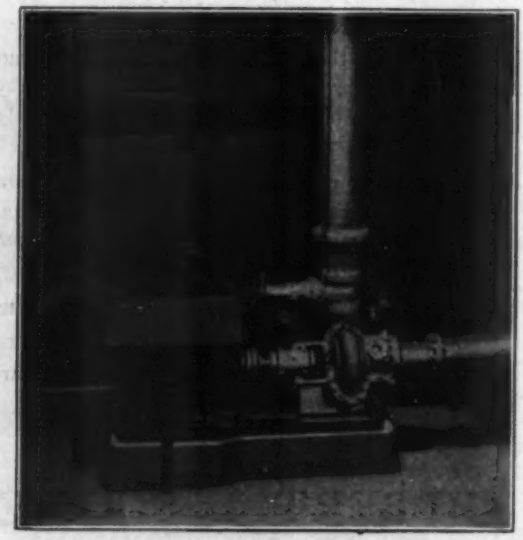
Balanced Angle Compressors, No. 83-J Single Stage direct-connected, No. 83-H Single Stage Belted, No. 83-I.

SULLIVAN AIR COMPRESSORS

Sullivan Machinery Company

716 Wrigley Bldg., Chicago

The Improved Paper Stock Pumps



10"x8" Type SSOR Pump Handling 5 to 5½ per cent Groundwood.

The improved paper stock pump offered to paper mills by Allis-Chalmers is successfully handling the heavier consistencies of paper stock. In a new mill where there are 11 Allis-Chalmers stock pumps installed the first unit was placed in operation without any trouble whatsoever being experienced with the stock pumps. Leaflet 2105 describing these pumps will be sent on request.

ALLIS-CHALMERS MANUFACTURING CO.

MILWAUKEE, WIS. U.S.A.

new structure will be four stories with a basement, adjoining the present warehouse to the rear, and will be so constructed to permit the adding of two more floors later. The building will be of concrete, of an up-to-date design, and will be equipped with a sprinkler system throughout as well as other equipment necessary for the handling, grading and packing of paper stock.

International Earnings Rise

The International Paper and Power Company and subsidiaries report for the quarter ended June 30, 1929, net income of $927,641, after depreciation, amortization, interest, Federal taxes, subsidiary dividends and minority interest, equivalent to $1.02 a share earned on 905,640 shares of seven per cent preferred stock outstanding at the end of the quarter. This compares with $480,423 in the preceding quarter, or 53 cents a share on 904,002 shares then outstanding.

Net income for the first six months of this year was $1,408,064 after the above charges, equal to $1.55 a share on 905,640 shares of preferred stock. These earnings do not include the undistributed portion of the earnings accruing prior to April 1, 1929, on the common shares of the New England Power Association held by the International Company.

An acquisition to the staff of the Williams Bauer Corporation, broker in papermakers' supplies of 154 Nassau street, New York, is Paul D. Bond, who for 18 years was with the Pennsylvania Railroad, more recently as freight solicitor in the downtown district of New York and therefore well known among paper stock packers and dealers. Mr. Bond will assist Ralph O. Williams, head of the concern, in both a buying and selling capacity.

The Inland Paper Board Co., Inc., manufacturer of paper board with offices in Norwich, Conn., has filed notice of an increase in capitalization from 13,000 to 50,000 shares of no par stock.

The United Paperboard Company, Inc., whose main offices are in New York City, passed its dividend due in July on the preferred stock of the company. The last payment was 1½ per cent quarterly on April 15, 1929.

❖ NORTHERN NEW YORK ❖

A filter system costing $100,000 has been installed at the Deferiet plant of the St. Regis Paper Co. under the supervision of John Warner, chief engineer of the St. Regis mills. The filter includes 16 horizontal cylinders, eight feet in diameter and 25 feet long, filled with specially prepared sand and gravel. This filter removes every bit of coloring from the murky waters of the Black River, making the production of a fine quality of newsprint paper possible.

Earle H. Benson of Pulaski has just been granted by the United States Patent Office a patent on his container for wax paper and similar commodities. Mr. Benson's invention has been partly acquired by the Regal Paper Co. of Pulaski. It consists of a body part with pairs of upper and lower flaps to fold over, and end flaps overlying the body part as well as other features. The device has two features which the Patent Office held to be worthy of a patent. Mr. Benson filed his application for the patent on October 31st, 1927.

Fire which broke out on Aug. 19 destroyed two hoisting engines used in unloading pulpwood from boats to the dock of the Algonquin Paper Co. at Odgensburg. Some of the pulpwood piles on the dock were ignited, but these incipient blazes were quelled by the Ogdensburg fire department.

The personnel of the party which will represent the Bagley & Sewall Co. of Watertown in the erection of a large paper machine for the Volga River Pulp & Paper Co. in Rus-

RYERSON

Immediate Shipment from Stock

Bars, Shapes, Structurals, Rails, Plates, Sheets, Rivets, Bolts, Nails, Wire, Chain, Turnbuckles, Shafting, Boiler Tubes, Boiler Fittings, Corrugated Sheets, Concrete Reinforcing, Welding Rods, Babbitt Metal, Tool Steel, Bar Iron, Refined Iron, Floor Plates, Safety Treads, Small Tools, Machine Tools, etc.

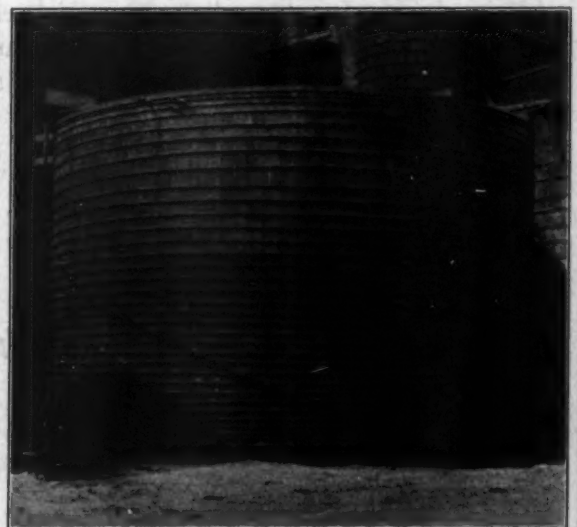
Write for the Journal and Stock List—the "key" to Immediate Steel.

JOSEPH T. RYERSON & SON INC.

Chicago Milwaukee Buffalo St. Louis New York Cincinnati Boston Detroit

STEEL

WOOD TANKS TILE



Blow Pit and Vomit Stack at Marathon Paper Company Mill.

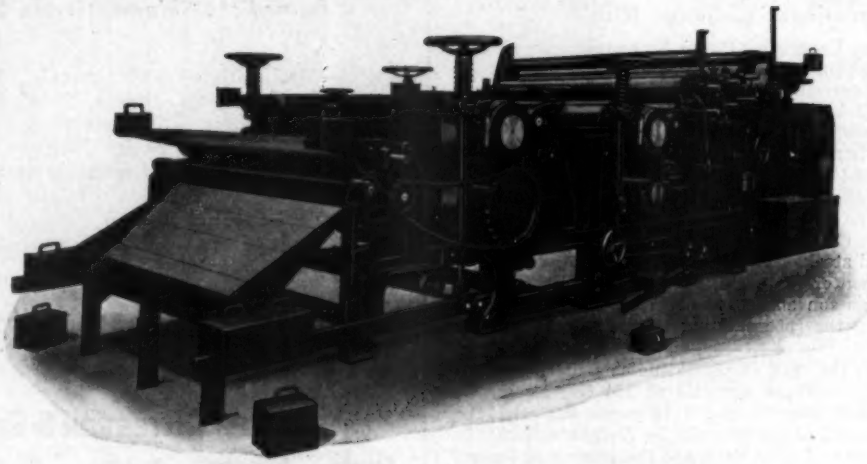
NO TANK is too large and none too small for our tank-making equipment and stocks. We cater to the needs of the paper industry. Blow Pits, Vomit Stacks, Stock Tanks, Acid Storage Tanks, Stuff Chests, Agitators, etc. See our Condensed Catalog in Paper and Pulp Mill Catalog. Ask us about our Glazed Tile Tanks.

Tank Builders Since 1867

KALAMAZOO TANK AND SILO CO.

KALAMAZOO, MICHIGAN

THE 1929 ROGERS WET MACHINE*



USING THREE OR TWO FELTS
GIVING 48% A.D. PULP IN SHEETS

*equipped with A. D. Wood Double Sealing Collars.

Keeping abreast of the times—

1. Longer rolls to save Felt edges.
2. Top press rolls in roller bearings to save Felts and Power.
3. Double Sealing Collars to save Felts, Power and Fibre.

And also—

New type easy acting clutch, bearings and journals of ample capacity, and interchangeable parts to save repairs. A well designed machine and worthy of investigation.

1929 Activities in the South include:—

NORTH CAROLINA	One Machine
TENNESSEE	One Machine
ALABAMA	One Machine

GLENS FALLS MACHINE WORKS

GLENS FALLS, N. Y.

E. K. MANSFIELD CO., 501 Fifth Ave., N. Y. C. **Eastern Representative**

sia includes Richard Gray of Watertown, John Ostling of Denora, Ont., John Whitehead of Ocean Falls, B. C., Lawrence R. Stark, Kapuskasing, Ont., and John D. Amey of Ashtemo, Ont. All except Mr. Amey, who will be paper making superintendent and supervise running of the machine, will act in the capacity of erecting engineers. The party left last month and will remain in Russia a year. The machine, which is one of the first built in America for Russia, was manufactured in Watertown. It is a 234-inch fourdrinier, designed for making newsprint paper.

Taggart Corp. Makes Report

Taggart Corporation and subsidiaries report for the year ended June 30, 1929, covering the first twelve months of consolidated operations, net income available for dividends of $1,121,425, equal, after dividends paid on preferred and Class A stocks, to $853,474 or $1.62 a share on the 525,778 shares of common stock outstanding at the end of the period. The major part of these earnings were realized in the six months ended June 30, the report showing net for this period of $732,020, the balance available for common dividends being equal to $1.13 a share.

Production of bags by the Taggart Corporation group during the year established a record, F. L. Carlisle, president of the company, declared in his remarks to stockholders, and the outlook for 1929 gives promise that the volume of the past year will be exceeded by a considerable margin. A total of 105,119,060 bags were produced in the fiscal year, or approximately double the output during the calendar year 1927, and an increase of more than 12,000,000 bags over the output for the calendar year 1928. The consolidated balance sheet of June 30, last, shows total current assets of $3,828,533 and total current liabilities of $457,369, resulting in net working capital of $3,371,163. Funded debt of subsidiaries was reduced during the year by $55,000. Securities carried at cost ($1,411,975) on the balance sheet have a current value of $1,578,000.

Henry W. Stebbins

Henry W. Stebbins, organizer of the Stebbins Engineering Company, Watertown, New York, and well-known builder of pulp and paper mills in both the United States and Canada, passed away in Watertown, August 20, 1929.

Mr. Stebbins was born in Whittington, England, January 16, 1857. At the age of 14 he came to the United States and went to Holyoke, Mass., to learn the paper trade. In 1882, he became identified with the Kimberly Paper Company, Appleton, Wis., and had a part in building the second pulp mill in this country at Monaco, Wis. He was made superintendent of this mill and remained there until 1892 when he went to Carrollton, Ohio, as superintendent of the George H. Friend Paper Company. In 1894 he formed a partnership known as the Stebbins & Friend Company, specializing in the construction of sulphite and pulp mills. In 1898 he removed to Watertown and organized the Stebbins Engineering Company, which company has been very successful as specialists in paper mill construction.

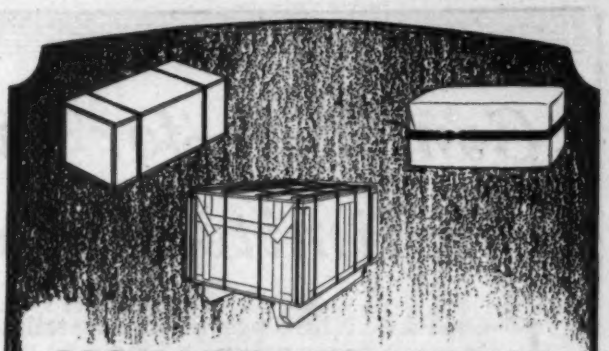
In 1910, Mr. Stebbins retired from active business, his son, George A. Stebbins succeeding him. Augustus F. Richter, one of his first associates in the Stebbins Engineering Company is now its president.

The widow and one daughter survive.

Two paper machines in the Gould Paper Co. mill at Lyons Falls were damaged by fire on Aug. 21. The fire was started by friction from a rope drive on one of the machines. The loss, which was not great, was covered by insurance.

G. J. Lane, manager of the International Paper Co. plant at Pyrites, has been transferred to Gatineau, Canada, as assistant manager of the International mill there. W. Noyes Baker of Glens Falls has been named manager of the Pyrites mill.

The Lewis-Shepard Co., Boston, Mass., has announced the appointment of Fred A. Conkle as railroad representative for the sale of its lift-trucks, stackers, skid-platforms and racks to the railroad field in the United States.



SIGNODE STRAPPING

BEST FOR PAPER SHIPMENTS

Whether you are shipping in cases, cartons, or skids the Signode Tensional Steel Strapping System will save you time and money. The strong, clean, cold rolled steel strapping is tightened about the shipments and sealed in a matter of seconds. Damage claims are reduced and pilfering eliminated. We have just issued a new Booklet on "Signode for Paper Shipments". May we send you a copy?

Signode Steel Strapping Co.

2600 N. Western Ave., Chicago, Ill., U. S. A.
Canadian Steel Strapping Co., Ltd., Montreal, Quebec
Offices in Principal Cities

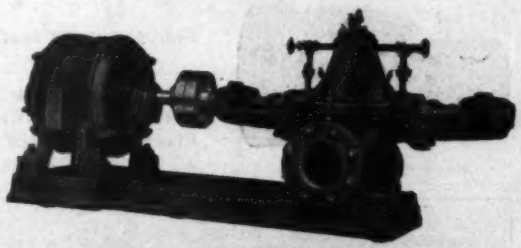
SIGNODE

***The* Sealed Steel Strapping**

We also manufacture round wire tensional reinforcements, all forms of nailed-on strapping, wire tying machines, pail clasps, clutch nails, tag fasteners, etc. Write for general catalog.

PUMPS

THAT KEEP PRODUCTION UP AND UPKEEP DOWN



LAWRENCE "VORTEX" is the answer

LAWRENCE "VORTEX" PUMPS are giving day-in ——day-out performance in numerous pulp and paper mills, handling all types of liquids and thick stock. The outstanding features are:—DURABILITY — ACCESSIBILITY — RELIABILITY.

These are the vital factors that eliminate pump troubles.

There is a LAWRENCE "VORTEX" pump for every service in the paper industry. It will pay you to investigate and standardize on the "VORTEX".

Write for recommendations and bulletins.

Lawrence Pump & Engine Co.

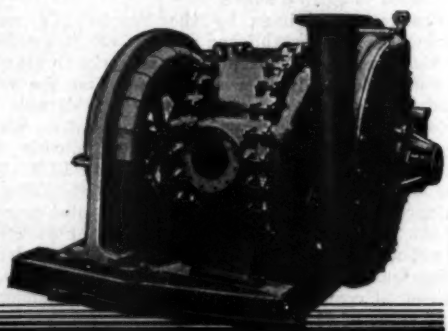
P. O. BOX 70,
LAWRENCE, MASS.
New York Office:—90 West Street

Compact—for ease of installation in limited spaces

COMPACTNESS permits the installation of the Jennings Flat Box Pump in almost any desired location in the mill. Install a Jennings wherever there's room on the machine floor so that water can be delivered direct to the well under the paper machine. Or, place it below the machine floor, and it will return water to beaters and stock chest against whatever head is necessary. Write for complete details.

JENNINGS
FLAT BOX PUMP

Capacities from 150 to 5000 g.p.m. of water together with 80 to 2300 cu. ft. per min. of air at 10 in. vacuum.



Jennings Pumps

THE NASH ENGINEERING CO. 161 WILSON ROAD SOUTH NORWALK CONN.

THE JOHNSON FRICTION CLUTCH

As used on the

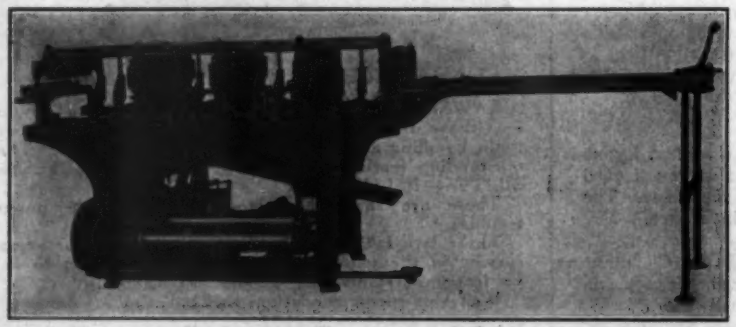
ROSBACK EIGHT-HOLE PAPER PERFORATOR

Single Clutch—Exterior

Four perforating heads and the heading punches all in operation shown below.

Installed with spur gear mounted on the clutch hub, the No. 5 JOHNSON Single Clutch is used on the main drive shaft. The Clutch operates 7,680 times per day, running steadily day in and day out, and it always stands up. THAT'S SERVICE!

Single Clutch with Spur Gear on Hub



Courtesy F. P. Rosback Co., Benton Harbor, Mich.

Single Clutch—Sectioned

WRITE FOR CATALOG "PI-9"

THE CARLYLE JOHNSON MACHINE CO. MANCHESTER CONN.

NEW ENGLAND

Paper Twine Recommended for Tying Fleeces

Paper and paper twine manufacturers as well as paper stock dealers and jute twine manufacturers are interested in a recent bulletin issued by the fleece twine committee of the Boston Wool Trade Association the latter part of August, urging the use of paper twine in tying wool fleeces. The bulletin has been issued on account of discrimination by wool buyers against wool grown in the eastern and middle-western states, largely because many growers tie their fleeces with heavy rough twine which is so loosely constructed that fibers become easily detached and cling to the wool, thus occasioning defects in the finished cloth. During the current year, fleeces from the Rocky Mountain section have also been found tied with objectionable twine. The bulletin states that "a clear understanding of the evil and its remedy is all that is necessary to convince growers that their own financial interests will best be served by the use of paper twine. Manufacturers recommended only paper twine."

The United States Department of Agriculture also has under way a campaign advocating the use of paper twine.

If the recommendations of the bulletin are followed, jute wool strings for papermaking purposes are liable to become scarce as time goes on. For many years shippers of wool fleeces have been using jute strings.

The committee, of which Eliot Bicknell, 263 Summer Street, Boston, is chairman, have been at work on the matter for about five months. Standard paper fleece twine has the strong recommendation and endorsement of the Boston Wool Trade Association, Midwest Wool Trade Association, National Association of Wool Manufacturers, Philadelphia Wool and Textile Association and the Wool Institute.

The Andrews Paper Co., Boston, has released Richmond F. Bostwick to the Victoria Paper Mills Paper Co. as the representative in New England. The Andrews Paper Co. is one of the largest New England distributors of that mill on Three Leaf Toilet Paper Black Core Rolls and Ovals.

The southern and western mills are equalizing freight rates with the mid-south and eastern mills in shipment of No. 2 kraft.

The S. D. Warren Co., whose present executive offices are at 101 Milk street, Boston, has leased for a long term the entire tenth floor, consisting of 17,000 square feet, of the Public Service Building, 89 Broad street, Boston, and will move in October. The plants of this company are at Cumberland Mills and Gardiner, Maine.

H. R. Lewis, general superintendent of the West Groton, Mass., factory of the Hollingsworth & Vose Co., who has been in Europe, is expected to return this month. During his absence, Aubrey K. Nicholson has been acting as superintendent.

The New England Freight Association Proposal No. 17295 proposes to establish a rate of 18½¢ per 100 lbs. on scrap or waste paper, rags, etc., from Boston, Mass., and all points on the B. & A. railroad in the Boston Switching District to Philmont, N. Y.; Proposal No. 17353 proposes to cancel specific commodity rate of 16¢ per 100 lbs. on scrap or waste paper, less carloads, in effect between New York literage points and Norwich, Conn., on account of no movement. Class rates to apply in lieu thereof; and Proposal 17407 proposes a reduction in the rate on waste paper, carloads, from Springfield, Mass., to Whippany, N. J., from 26½¢ to 22½¢ per 100 lbs.

An unfinished will contest case, involving the disposal of $100,000 and in which a certain brand of paper figures, is to be resumed this month. At the Norfolk Probate Court in Brookline, Mass., recently, William A. Holgate, assistant foreman of the finishing department of the Parsons Paper Co.,

ESTES SERVICE Reduces the Efficiency of Industry 4.0%

PAPER MILL ECONOMISTS

17 Consecutive Years Serving Industry

* * *

Webster defines an Economist as one who expends or directs the expenditures of money, time or labor judiciously and without waste. This definition illustrates Estes Service.

We have served in many of the leading Paper Mills and our work therein has been satisfactory to the degree of personal recommendation from one Mill Executive to another.

Write for further information and list of Paper Mill Executives who will tell you of benefits derived from Estes Service.

* * *

L. V. Estes Incorporated

Industrial Engineers

4753 Broadway Chicago

"For Better Service" use the HOLYOKE wire

Decreases Cost - Increases Production

HOLYOKE WIRE CLOTH CO.

Manufacturers of

Fine Fourdrinier Wires, Cylinder Covers and Dandy Rolls

Water Marks A Specialty

HOLYOKE MASSACHUSETTS

MERRIMAC CHEMICAL COMPANY

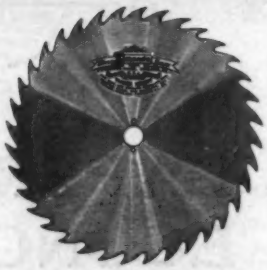
148 STATE ST.

BOSTON, MASS.

COMMERCIAL ALUM CMC IRON FREE ALUM

SIMONDS

Circular Saws and Machine Knives



For pulp and paper mills it is economy to use Simonds Saws and Barker, Chipper and Paper Cutter Knives because they hold their edge longer and cut faster. They are backed by a near century of experience. Write for catalogue and prices.

Simonds Saw and Steel Co.

Established 1832
Fitchburg, Mass.

Boston Chicago

APMEW Timken Universal Screen

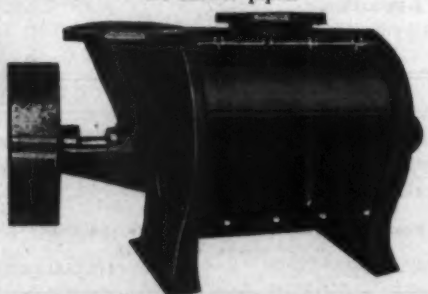
for

Paper and Pulp

17 Sold in Europe, Canada and U.S.A. during last 6 months of 1928

Produces finest quality Paper and Pulp. 90 tons daily capacity groundwood with .065" plates. 20 H.P. consumed for 90 tons production. .3% to 1% Screening Consistency. Tailings under control.

No mixing of air. No foaming. No lumps. No spilling. No shower pipes.



May we assist your Company to increase its earnings

ASK US.

American Paper Machinery and Engineering Works

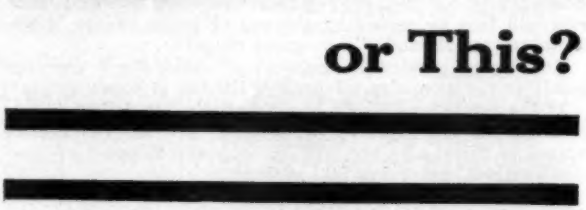
GLENS FALLS, N. Y.

Canadian Manufacturer — Paper Mill Equipment, Ltd., 413 Drummond Building, Montreal, Que.

Pulp Screens — Centrifugal Stock Pumps — Rotary Sulphur Burners

Do Your Pulleys Make Your Belts Track Like This?

or This?



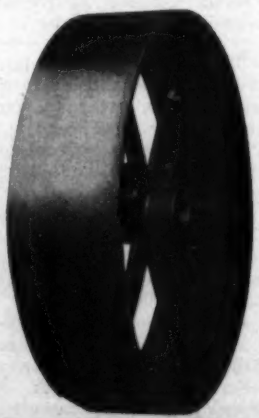
Straight line travel of belt indicates true running pulleys. When belt travels in an irregular line 10 to 1 the pulleys are out of true.

If the wheels on your automobile made tracks like some pulleys, you would not use them. Why use pulleys which do not run true?

Wood's Cast Iron Pulleys are machine molded, turned true, bored true, run true and stay true.

Using Wood's Cast Iron Pulleys on that next drive will prevent many troubles.

DRIVE RIGHT



T. B. Wood's Sons Co.

Chambersburg, Pa.

Cambridge Mass. Greenville S. C.

Holyoke, Mass., testified. It is claimed that the will was dated July 25, 1925, and Mr. Holgate, reading from the records, testified that the certain brand of paper on which the will was supposed to have been drawn did not leave the mill until April 18, 1928, and went to Hobbs & Warren, stationers at Boston. Cross-examined, Mr. Holgate testified that he told one grade from another by the "feel" with his fingers. The will is being contested by Alfred J. Perkins, Atlantic, N. J., a cousin of the deceased, Mrs. Laura A. Littlefield.

Litigation Between Southworth and Strathmore

Litigation is under way between the Strathmore Paper Co. and the Southworth Co., Mittineague, Mass., in regard to the water rights of the Westfield River which flows in the rear of these plants. Papers in a bill in equity have been filed by the Strathmore Co., plaintiff, seeking that a permanent injunction be issued against the Southworth Co., restraining it from drawing water from the canal described in the bill, other than the amount granted in an indenture of April 1, 1839, between the Agawam Canal Co. and the Southworth Manufacturing Co., and the agreement between the Agawam Paper Co. and the Southworth Co. of May 2, 1890.

It is also asked that the Southworth Co. be enjoined from drawing or using from the canal, in addition to wash water, any quantity of water in excess of 61.02 feet a second when the canal is full with an increase of amount as the height of water in the canal falls so as to make its power at all times when there is sufficient water in the river therefor equal to that produced by 61.02 feet a second when the canal is full and no more.

The plaintiff asks that damages alleged to have been sustained by it on account of unauthorized and unlawful use by the defendant of water and waterpower from the canal be determined and that the defendant be ordered to pay them.

The Strathmore Co. owns a dam across the Westfield River in West Springfield and a canal leading from the river above the dam and land which is connected, adjacent to and appurtenant to the dam and canal, and the hydraulic development of which the dam and the canal are a part. It owns land adjoining and lying along the canal on which mill buildings are located and which are in part operated by water drawn from the canal and flowing through the flumes, penstocks, water wheels and raceways and discharging into the Westfield River.

The Southworth Co. owns another dam across the Westfield River which is located further upstream than the other dam. The dams and canal and land connected with them were originally the property of the Agawam Canal Co.

It is stated by the plaintiff that the defendant is the owner of certain mill buildings and land on which they are situated along the canal of the plaintiff, with certain water power privileges and easements.

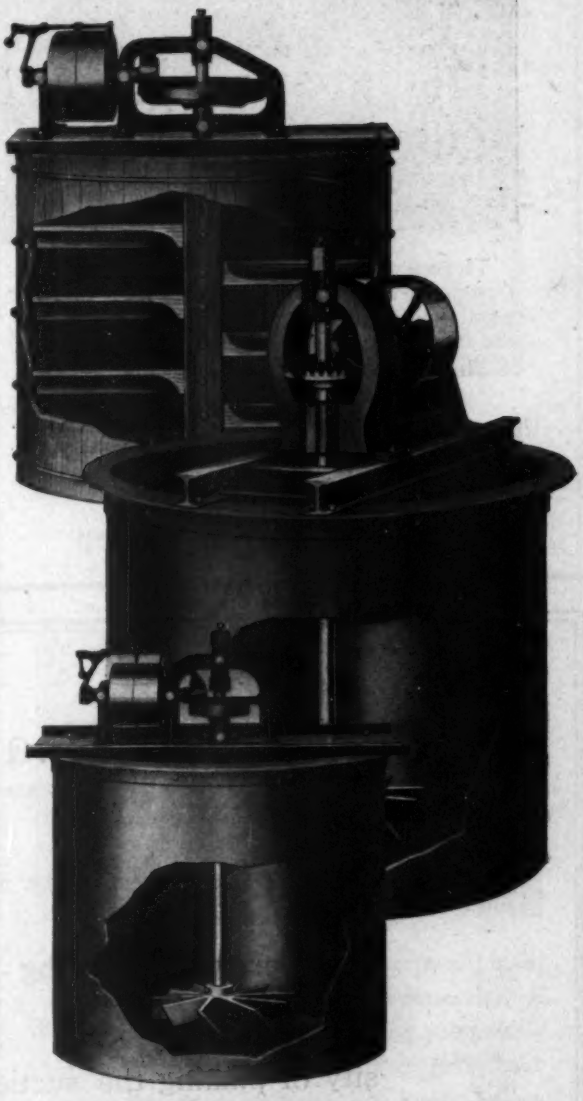
Among the displays at the exhibition of the Associated Industries of Massachusetts at the Copley Plaza Hotel Boston, October 21 to 23, will be those of the American Writing Paper Co., Strathmore Paper Co., Tileston & Hollingsworth Co., and Geo. W. Wheelwright Paper Co.

Contracts have been awarded for an addition to the plant of the B. D. Rising Paper Co., Housatonic, Mass. Plans are by Lyman Howes, of the Strathmore Paper Co. The general contractor is J. R. Hampson & Co., Pittsfield. The steel and iron is being furnished by the Eastern Bridge and Structural Company, Worcester, and steel sash by Trucson Steel Co.

Sub-contracts have been awarded for construction of the new factory and office building of the Old Colony Envelope Co., Westfield, Mass. The general contractor is L. D. Phillips Construction Co.; steel and iron, Harman Steel Co.

Machinery and equipment of the Berkshire Paper Co., North Adams, Mass., the reorganized branch of the former Berkshire Hills Paper Co. removed from the old Stone mill in Maple Grove, will be operated in the former Gagner silk mill on Dean street, beginning Sept. 6, according to Henry L. Harrington, president of the company. The Berkshire Paper

—for fillers—sizes—
colors—use **Nett Co.**
Agitating Equipment



Simple to select—complete to the last bolt—ready to set up and run—standard sizes and types in stock

Write for quotations covering your requirements

The New England Tank & Tower Co.
Everett, Mass.
30 Church St., New York

Positive Suction Produces Satisfactory Results at K.V.P.

The operators in paper mills, as in other industries want equipment which they can depend upon to produce positive results with the least operating and maintenance expense. That is the kind of service The Kalamazoo Vegetable Parchment Company is obtaining through the use of Connersville Cycloidal Vacuum Pumps, which pull a positive suction on the rolls, flat boxes, driers, felt conditioners and filters.

Bulletin 20B describes the Connersville Pumps.

The Connersville Blower Company
Kentucky Ave. at 16th St.
Connersville Ind., U. S. A.

Branch Sales Offices
Chicago 38 W. Jackson Blvd. Pittsburgh. Chamber of Commerce Bldg. New York City. 114 Liberty St.

CONNERSVILLE
Blowers: Gas Pumps: Meters: Cycloidal Pumps

Lindsay Spiral Weave Fourdrinier Wires
(Patented Oct. 1927)

Represent the latest idea in paper machine wire cloth.

They prevent grooving of Suction Boxes, scoring and filling up of seams. This overcomes the necessity of planing the suction box covers and adds to the life and tonnage of the wires.

Lindsay Wire Weaving Company
Collinwood Station CLEVELAND, OHIO

Co., which holds all rights to manufacture and sell paper formerly produced by the Berkshire Hills Paper Co., has occupied its present location for about a year. Manufactured outside, the paper is sent there for finishing and packing purposes. There is much more space in the new building to meet the growth of the business of the company. Officials of the company are satisfied with its progress.

Sidney L. Willson, president of the American Writing Paper Co., Holyoke, Mass., was tendered a birthday dinner in the club house of the Mt. Tom Golf Club early in August at the annual golf tournament of the officials and office force of the company. Mr. Willson was presented with a radio set. Russell S. Madden, sales director, made the presentation speech, to which Mr. Willson happily responded.

The Hollingsworth & Vose Co., Boston, Mass., has awarded a general contract to the M. W. Allen Construction Co., Walpole, Mass., for building an addition to the mill at East Walpole. The new unit will be one-story, 60x129 feet, and will be used for extensions in the machine department. The cost will be approximately $40,000.

The Strathmore Paper Co., Mittineague, Mass., is understood to have revised plans in connection with its proposed new hydroelectric power plant at West Springfield, for mill service, which it is said will cost approximately $100,000, with equipment.

The Standard Paper Co., Waterbury, Conn., has been incorporated with a capital of $75,000, to manufacture and deal in paper goods of various kinds. The company will start business with a paid-in capital of $50,000. The incorporators are: Charles Vineburg, 36 Irving street, Waterbury, and E. L. Faure, New Haven. Mr. Vineburg is representative.

Charles Ellsworth Weed, superintendent of the Fisk Paper Co., Inc., Hinsdale, N. H., died Aug. 10, after a shock which he sustained July 31. Mr. Weed was born in Topsham, Vt., 73 years ago, the son of Joseph and Ella (Butterfield) Weed, and came to Hinsdale to live 35 years ago. He had been superintendent of the Fisk Paper Co., for the last 10 years and had previously held a similar position with the Ashuelot Paper, also in Hinsdale. The widow, son, Ellwood, a brother, Edward, and a grandson, George Weed, all of Hinsdale, also survive him.

Allen J. Nadeau, Dudley, Mass., a manufacturer conducting business under the name of Chatham Center Paper Mills, Chatham Center, N. Y., has filed a voluntary petition in bankruptcy with liabilities of $13,232 and assets of $6,000.

C. Frank Sammet

By the passing of C. Frank Sammet at his home in Dalton, Mass., on Thursday, August 1, the Technical Association of the Pulp and Paper Industry has lost one of its distinguished members.

Born in Boston in 1881, the son of George W. and Victoria Sammet, he attended the public schools there and was graduated from Massachusetts Institute of Technology in 1903. Soon thereafter he was appointed to a position in the leather and paper laboratories of the Bureau of Chemistry at Washington under Dr. F. P. Veitch, and it was not long before he began to contribute articles to the educational journals of the paper industry on the testing of paper.

Some of Mr. Sammet's earlier articles were concerned with the detection of faulty sizing in paper, measuring the translucency of paper and folding and tearing resistance of various papers. He was known as a thorough technician who was familiar with the chemistry of paper and the physical testing of it from start to finish.

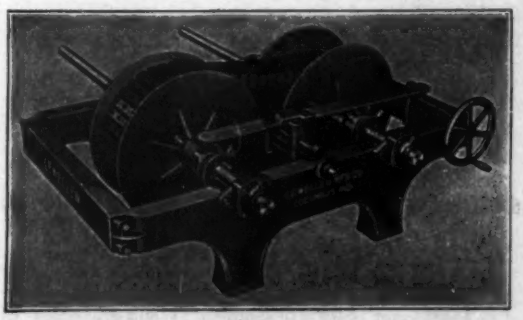
He early attracted the notice of the late United States Senator W. Murray Crane who invited him to join the technical staff of Crane & Company where he enjoyed greater opportunities for the development of his talent, and acquired a sound technical experience.

He was possessed of many agreeable qualities and was

Why not own a Lewellen?

If you have any variable speed control problems, it will cost you less to install the Lewellen Transmission than it is costing you now to try to get along without it. Increased production, with reduced waste and spoilage makes the Lewellen a profitable investment.

Winders, cutters, backers, corrugators, printers, in short almost every process of paper fabrication calls for accurate variable speed control. The Lewellen Transmission meets every requirement and quickly pays for itself.



The Lewellen engineering department is at your service to give you any information or advice you may require, regarding your variable speed control problem. This is without cost to you or obligation of any kind. Let us give you the benefit of our experience.

Lewellen Manufacturing Co.
COLUMBUS, INDIANA

LEWELLEN Variable Speed TRANSMISSION

DEPENDABLE AT THE CRITICAL MOMENT

Like a fuse in an important electrical circuit, a Davis Stop and Check Valve acts positively the instant it's needed.

The Davis Stop and Check Valve is protected against scale formation and expansion. These common causes of trouble have no effect on the Davis.

Besides this protection, Davis design gives visible action and a means for hand testing at any time. You never have to guess about its working condition.

Send for catalog No. 11.

G. M. DAVIS REGULATOR CO.
414 MILWAUKEE AVE. CHICAGO, ILL.

Balanced Valve Float Valve Steam Valve Back Pressure Valve
Pressure Regulator Exhaust Relief Valve Non-Return Valve
Butterfly Valve Float Box with Control Valve

DAVIS AUTOMATIC VALVE SPECIALTIES

PI9-Gray

MARIS DOUBLE BEAM 2 HOOK HAND CRANE

Built stronger to last longer
Maris Cranes bear a reputation of never wearing out.

One mining company bought 20 hand cranes in 38 years. A paper manufacturer has 49 Maris cranes of all types.

Send us your inquiries and be convinced

MARIS Overhead Electric Cranes
MARIS Hand Cranes, All Types
MARIS Simplified Electric Hoist
MARIS Monorail Systems, Hand and Electric
MARIS Self-aligning Monorail Trolleys
MARIS Self-lubricating Chain Hoist

MARIS BROTHERS, Inc.
5530 Grays Ave. Philadelphia, Pa.

Greater Strength Greater Safety Longer Valve Life

Fig. 460

COMBINE to make Powell Valves the choice of engineers who want the first installation to be lasting.

The fundamental superiorities of Powell Valves and appliances—including design, foundry practice, careful processing and accurate testing—insure uniform products. Collectively, these fundamentals account for the striking popularity of Powell Valves.

THE WM. POWELL CO.
2525 Spring Grove Ave.
CINCINNATI, OHIO

Change to--Standardize on

POWELL VALVES

Pickles' Patent Automatic Steam Regulator FOR Paper Making Machines

Which absolutely control the drying of the sheet. Installed on sixty days' trial

W. F. PICKLES Buckland, Conn.

POWER PLANT PIPING

We are fully equipped to supply fabricated materials and to install complete piping systems for Electric Power Stations, Blast Furnaces, Steel Mills, Coke Works, Paper Mills and Industrial Plants of every description—backed by an experience of almost a quarter century.

Pittsburgh Piping & Equipment Co.
PITTSBURGH, PA.

STEEL PLATE CONSTRUCTION
Riveted and Welded
Specialists in PAPER DIGESTERS and Heavy Plate Work
RITER-CONLEY COMPANY
Pittsburgh, Pa.

altogether a charming personality who made friends wherever he went. He was a member of the Congregational church of Dalton and was active in community work. Besides his parents, he is survived by his wife who was Miss Anita A. Reinking; two children, Thornton and Adrian; a brother, George B. Sammet and a sister, Mrs. Elsa Daloz, both of Boston.

C. Frank Sammet was a man of upright Christian character, gentle and courteous in his relations with others and one who found his chief pleasure in the family circle. He had been a member of the Technical Association of the Pulp and Paper Industry since 1919.

F. Franklin Moon

Frederick Franklin Moon, dean of the New York State College of Forestry for the past nine years, and widely and favorably known among pulp and paper manufacturers, died in a hospital at Syracuse, N. Y., on Tuesday, September 3, following an operation. His wife, Marion Stutson Moon, whom he married in 1912, and one son, Frederick Franklin Moon Jr., survive.

The late Dean Moon was in the fiftieth year of his age, having been born July 3, 1880, in Easton, Pa., where he received his early education. Amherst College gave him his bachelor degree in arts and in 1909 he was graduated from the Yale School of Forestry as Master of Forestry. Prior to his matriculation at Yale, he studied two years at Harvard University.

After a term with the United States Forestry Service, he became a forester for the New York State Forest, Fish and Game Commission.

Following an appointment as professor of forestry at Massachusetts Agricultural College, a chair which he held for two years, he became professor of forest engineering at the New York State College of Forestry in Syracuse, where he succeeded Dr. Hugh P. Baker as dean in 1920, when Doctor Baker resigned to take the secretaryship of the American Paper and Pulp Association.

Mr. Moon was the author of books and numerous magazine articles on forestry subjects and was frequently called upon as a lecturer to address high schools and community centers on forestry topics.

A series of illustrated articles on European Forestry written by Dean Moon will be found in THE PAPER INDUSTRY of June, July and August, 1928. These are of extraordinary interest, constituting as they do a record of visits made by him during his sabbatical year to all the important forestry projects and forestry schools of Europe. His figure will be recognized in two or three of the beautiful engravings which illustrate these series of forestry studies.

Holding Company for Sweden Pulp Mills

Formation of a holding company to take over majority control of ten leading sawmill and pulp mill concerns in Northern Sweden by the Kreuger & Toll Company and the Svenska Handelsbanken was announced recently. Assets involved in the deal aggregate $75,000,000.

This new combination will represent the largest wood industry concern yet formed in Sweden and will control approximately 450,000 tons of Sweden's annual production of wood pulp and 140,000 standards of sawn wood with a combined export value of approximately $30,000,000.

Companies included in the combination are all old established enterprises largely centered around Sundsvall, the chief timber district of Sweden. In this district also are located the waterfalls owned by the Hammarforsens Power Company, which is controlled by the Kreuger & Toll Company and which will also enter the consolidation. The new pulp concern will own 4,000,000 acres of land in the best timber district of Sweden.

At the meeting of the board of directors in New York August 1, Darius E. Peck, assistant manager of the law department of the General Electric Company, Schenectady, N. Y., was elected vice president and general counsel of the company. At the same time, President Gerard Swope announced the retirement of Allen H. Jackson, who has been vice president and general counsel since 1922.

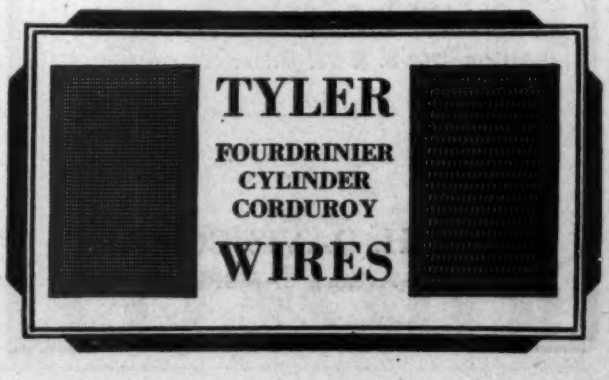
Hum-mer *Electric*
CHIP SCREEN

Immense capacity!
Thorough removal of sawdust and fine particles!
Small floor space required!
Low power consumption!
Fully adjustable screening angle and vibration!
No lubrication!
No destructive shaking of supports or buildings!
No belts or pulleys!
Trouble-free operation!

These are the features which make the Wood Chip Hummer a profitable investment for pulp and paper mills!

Write for Catalogue 54-P

The W. S. Tyler Company
Cleveland, Ohio



PAPERMILL MACHINERY FOR SALE

One 72" Cameron Slitter and Rewinder Type 10—A-1 Condition for immediate delivery.
Parts of 120" Trim Board Machine Four 10 Plate Packer Screens. Complete six cylinder Wet End. Dryer Unit 36 dryers 48" diam. x 128" Face. Two Farrell stacks Calenders—One 7 and one 9 Roll 126" Face. Good condition. Can be had at once.
One 14" x 16" Brownell Variable Speed Engine Ready to Run.
One 1500 lb. Downingtown Iron Tub Beater. Practically new.
Two Sturtevant Blower Systems. Sizes 9 and 12.—Complete.
One—No. 2 Lanoye Pulper. Prompt delivery. In fine condition.
Parts of 80" trim paper machine. 14—36" diam. dryers. Calender Stack, Reel, Moore & White Double drum Rewinder—Good condition.

Send us your inquiries

GIBBS-BROWER COMPANY, Inc.
Paper and Pulp Mill Brokers
261 Broadway, New York City
OUR MOTTO—"Service First"

Sales Representative Wanted

For Centrifugal Pumping Equipment

Leading manufacturer of centrifugal pumps specializing in pumping equipment for paper mills desires active Sales Agent in Cincinnati to cover Miami River mills. Can offer complete line of centrifugal pumps to capable agent now established in Cincinnati. Arrangements on commission basis. Profitable account for capable representative. Address Box 166, The Paper Industry.

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SOUTHERN

Florida Officials Studying Forestry Operations

The Plough Chemical Co., manufacturer of paper boxes and toilet preparations, Memphis, Tenn., is preparing to erect a large plant to house its various departments, and work on the new million-dollar plant will proceed in the near future. The plans contemplate an ornate and commodious structure and were prepared by architects Hanker and Cairns, of Memphis, Tenn.

S. Bryan Jennings, attorney of Jacksonville, Fla., and president of the Florida Board of Forestry, and Harry Lee Baker, state forester will make a trip through the northeastern section of the United States during September to study operations there. Mr. Jennings believes there are great possibilities in the effort being made to bring pulp mills to Florida.

W. L. Wilson, who has been employed by the Florida state board to make a special investigation as to the utilization of forest products, particularly for the cellulose industry, has arranged a meeting with officials in Washington, after which he will join Messrs. Jennings and Lee for a conference with the officials of the Forest Products Laboratory, Madison, Wis.

The third good-will tour of the Camden, Ark., Chamber of Commerce and Retail Merchants Association was put on the last week in August. The Smackover oil fields and several towns were visited. Camden, which about a year ago became the center of large paper mill operations in Arkansas, has undergone much industrial development.

At Monroe, La., another center of southern papermill activity, a toll free bridge over the Ouachita river has been determined by the officials of Monroe and West Monroe.

Tuscaloosa, Ala., the principal site of the paper mill industry in Alabama, now has a new star route that will enable it to make connections with the air mail northbound trip in the afternoon. The Old South coach which has been bringing the mail from Bessemer for afternoon trains and air mail will be employed to carry the mail from Tuscaloosa. The trip will be as one route, with a stop at Bessemer.

It is announced that the Celotex Co., Chicago, has acquired a paper mill at New Iberia, La., formerly owned by the Boldt Paper Co. The mill will be used by the Celotex Co. for the manufacture of insulating and building board from bagasse.

The Kingsport Press, Inc., Kingsport, Tenn. has acquired this summer the business and assets of J. J. Little and Co. Inc., established in 1892 and operating the largest complete book making plant in the country, producing all types of

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text books, reference works, fiction, etc. The Kingsport community is one of the principal points of papermill industrials, though an allied corporation has recently begun to develop papermill interests in Roane county, at Harriman, Tenn. The Meade interests control the papermill plants.

College of Forestry Exhibits

The New York State College of Forestry at Syracuse University, Syracuse, N. Y., exhibited at the New York State Fair held on August 26-31, 1929, at Syracuse, N. Y. Special emphasis was placed on the pulp and papermaking work of the college and of the importance of this work to the state. A number of tinted and untinted photographs arranged neatly upon panels with suitable captions were used to explain part of their story. A group of photographs on one panel illustrated clearly the various instruments employed in the physical testing of paper as well as method of manipulation for each. Another panel was developed around the wood end of the industry. In addition to photographs depicting the transportation of logs in a stream, pulpwood conveyors, pulpwood in storage, grinders, and chippers was boldly displayed the fact that the Sunday editions of the newspapers in this country take the wood from 7,500 acres of timberland every week. The reforestation of idle acres was another thought emphasized.

A third panel was given over to illustrations of materials used by the ancients for writing purposes. This display included photographs of such materials as a Babylonian clay tablet, papyrus roll, etc.

Placards were also used to inform the visitors that about 90 per cent of all paper is made from wood and about 60 per cent of this production is from spruce. Spruce, it was pointed out, is a native to New York State and should be growing on thousands of idle acres.

In one part of the booth, a machine illustrating the principles of the fourdrinier machine was in operation. This machine was about 20 ft. long and was equipped with 18 dryers. Each dryer was 8 inches in diameter and had a 20-inch face. A three-roll stack of calenders was also part of the machine. The unit was operated at about 18 feet per minute through an electric motor drive. Although the machine was not actually a model, it demonstrated clearly the principles involved in the formation of a sheet of paper. A pile of 4-foot pulpwood, as well as pulp laps of various kinds, pulp baled for shipment, wood chips ready for digesting by any of the chemical processes, laboratory digester, etc., were all displayed within the booth. The booth was nicely decorated with young spruces which gave to the entire exhibit a very pleasing and artistic appearance. The entire exhibit received attention of many thousands who attended the fair. It was just another example of methods employed by our schools of higher education to interest and to inform the public.

Aerial Survey Reveals Power Site

A power site of more than 20,000 horsepower has been discovered in the Tongass National Forest, southeastern Alaska, by the Alaska Aerial Survey Expedition now working in that region, according to information telegraphed to the Forest Service, United States Department of Agriculture in Washington. The aerial survey is expected to prove extremely valuable in connection with power development for the manufacture of wood pulp on the Tongass forest. The power site, just discovered, is on the east side of Taku Inlet near Greely Point.

Lakes, streams, and other important topographic features of the Tongass forest, the existence of which hitherto has not been known, have been revealed by the survey of the forest from the air.

Before the aerial survey expedition began its work none of the greater part of the land surface of southeastern Alaska had ever been surveyed. The shore lines of the islands and the mainland had been delineated, but farther inland the maps were largely blank, even within one mile of tidewater. In 1926 a total of 10,000 square miles was mapped. The work is now being continued this summer. It is estimated that an equal area will be covered in 1929, and this will complete the work to be done in this region.

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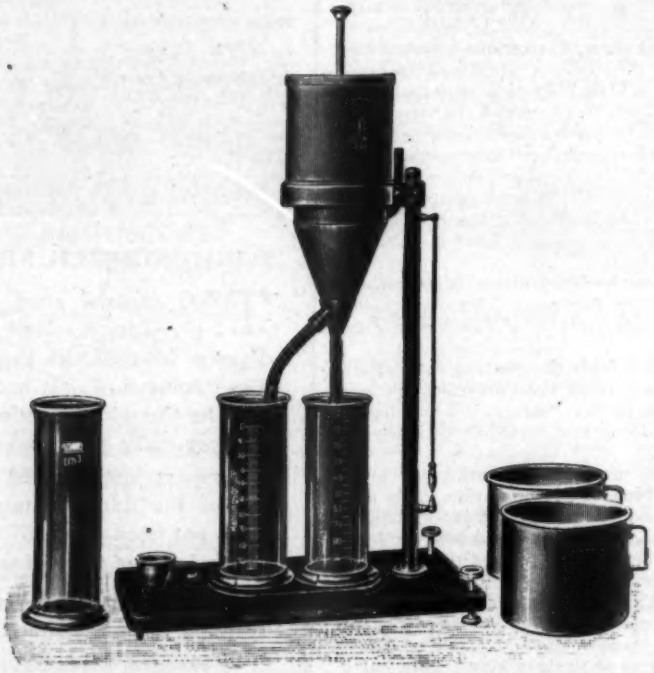

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UNITED STATES CANADA

Technical Developments in the Paper Industry

Domestic and Foreign

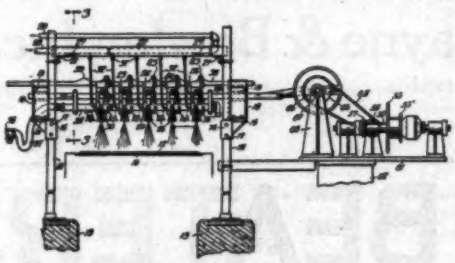
The following abstracts are of the latest developments found in the foreign press and the domestic and foreign patent offices. Photostats and translations of complete articles and patents can be obtained at cost price.

Making Wood Pulp

PULP is manufactured from fibrous materials by a process which consists of first impregnating the material with water by saturation. The second step in the process consists in subjecting the material in the presence of water to the rolling and crushing action of two oppositely and concentrically revolving discs under pressure so as to separate the fibers. H. H. Weiss, Madison, Wis., assignor, the Bauer Brothers Co., Springfield, O. United States Patent No. 1,711,706.

Color Depositing Apparatus for Paper Machines

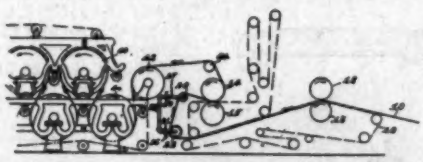
THE apparatus consists of the combination of a traveling web carrier and a group of color-spraying guns, which are shown in action in the accompanying illustration, mounted



above the carrier. Means are synchronized with the carrier for operating the guns intermittently. C. G. Bright, Neenah, assignor, Paper Patents Co., Neenah, Wis. United States Patent No. 1,709,969.

Improvement in a Papermaking Machine

AN upper and lower paper carrying roll is placed between the last wet press rolls and the final dryers. Means are provided for heating one of the paper carrying rolls to pre-



heat the paper prior to its passage through the last wet press rolls. R. E. Argy, Niagara Falls, N. Y. United States Patent No. 1,712,375.

Making Chemical Wood Pulp

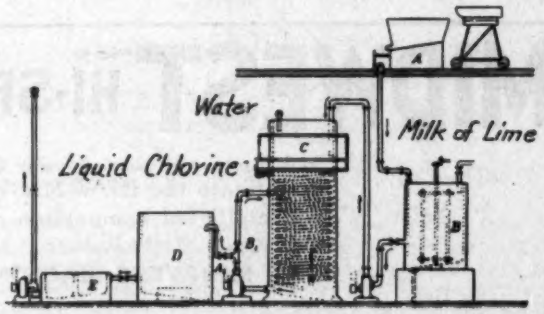
CHEMICAL wood pulp is made in the following manner: Raw cellulosic material is digested in an acid cooking liquor consisting of sodium sulphite. Sulphite pulp is thereby formed and also waste sulphite liquor. The sulphite pulp is then digested in an alkaline cook liquor, which contains sodium sulphide. This results in the formation of a pulp with a high content of alpha cellulose and a taste liquor of alkaline properties. The raw cellulosic material is digested in this waste alkaline liquor with the formation of sulphate pulp and waste sulphate liquor. D. B. Bradner, assignor, The Champion Coated Paper Co., Hamilton, Ohio. United States Patent No. 1,711,584.

Rosin Sizing

THIS article consists of a general review of the theories developed and the research work carried out on the rosin sizing problem. Many investigators are cited and their most important conclusions or deductions are given in few words. Mention is made of the Delthirna process (this has been abstracted and appeared in these columns. Editor) as well as of other processes recommended for similar purpose, that is the preparation of the size. Dr. A. Klein, Zellstoff und Papier, pages 370-3.

Preparing Chloride of Lime Solution with Liquid Chlorine

MILK of lime is first prepared for the manufacture of bleach liquor by admixture with liquid chlorine. The milk of lime flows from a tank (A) through a pipe into the tank (B), in which it is maintained in constant motion by means of an agitating device. The milk of lime is then pumped into the tower (C), in which a small lead coil is placed. The liquid chlorine runs through this coil and mixes with the



milk of lime at the bottom of the vessel. The mixture is circulated by a pump for approximately twenty minutes, whereby valve (A1) is closed. The usefulness of the liquor is judged by the yellowish color of the solution. Practice has shown that this simple test affords sufficiently accurate information on the usefulness of the liquor. The worker wears a mask in tending to the apparatus, as the small quantity of chlorine evolved makes it impossible to work in the room in which the apparatus is located. A fan provides fresh air in the room. The bleach liquor formed in this manner is pumped into an intermediate tank (D) after the valve (A1) is opened and the valve (B1) is closed. The liquor is allowed to remain in this tank for two to three hours. Then the liquor is allowed to run into the sand catcher (E) which is made of concrete, and small particles of lime which are carried along are precipitated.

The liquor that is obtained in this manner contains approximately 40 to 50 grams of active chlorine per liter. One liter of this liquor is commonly required for bleaching one kilogram of pulp (figured on the dry weight of the material), while for rags one liter of bleach liquor is sufficient to bleach seven to eight kilograms. The bleaching of pulp takes from ten to eleven hours at the room temperature and only six hours when the liquor is heated. Zellstoff und Papier, 1929, page 369—.

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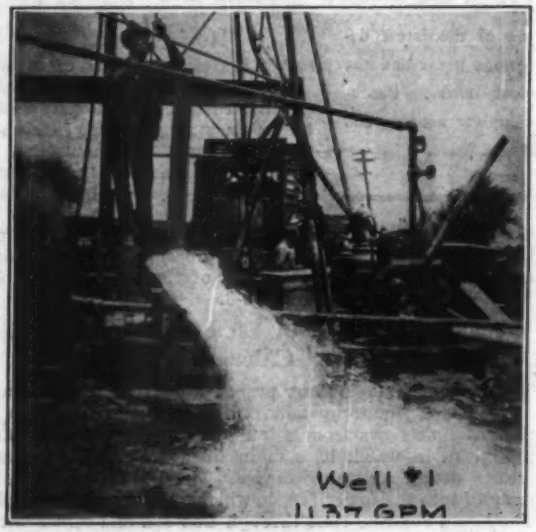

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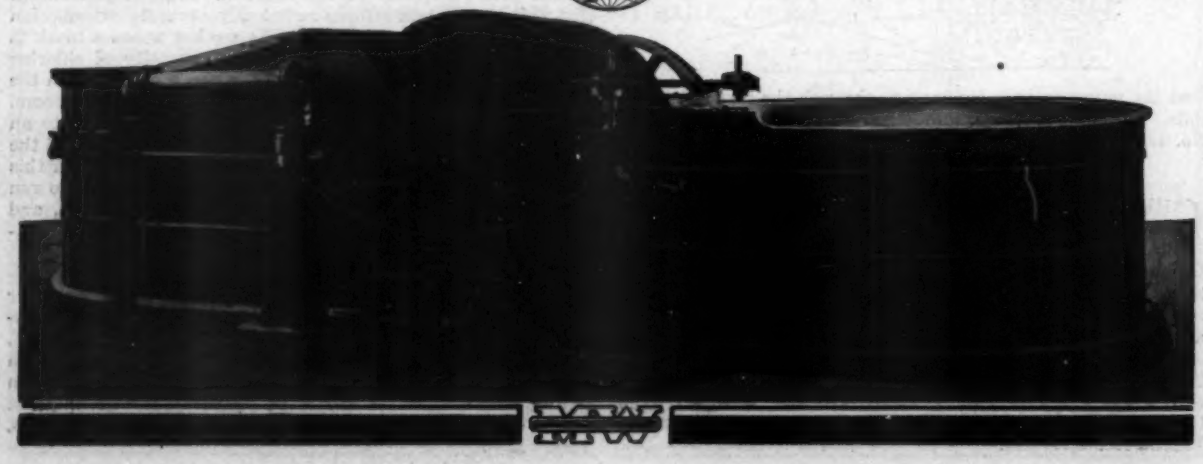
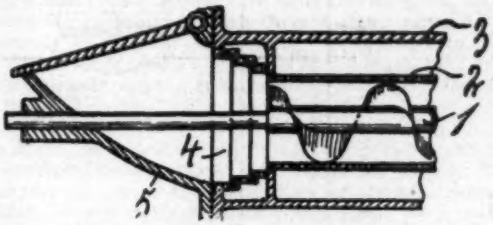


Screw Press for Removing Water from Pulp

THE danger occurred in the use of screw presses provided with perforated shells for the removal of water from pulp and other similar materials is that the layer next to the perforated shell will be compressed so tightly that it prevents the removal of water from the layers which lie next to the shaft. Lengthening the perforated shell over the end of the screw is of slight value under these circumstances.

According to the invention which has been patented in German Patent No. 476,435 by O. Qviller and K. Holter, the



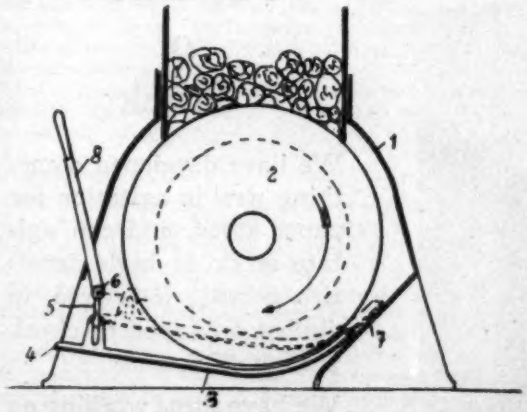
end of the perforated shell which acts as a screen near the end of the screw is made of larger diameter, with the result that the dense layer of material is broken open at the surface of the screen and channels are formed through which the water is removed from the interior of the mass.

The illustration shows only one of the many different ways in which this patent may be applied. It is seen that the perforated screen shell (2) is prolonged in the form of a annular surface (4) with increasing diameter at the point where the screw press (1) ends.

Storing and Moving Wood in Wood Grinders

THE illustration shows a method of storing and moving groundwood in grinders which can be applied to any kind of grinder irrespective of what method is being employed for grinding the wood.

The wood is pressed against the grindstone (2), which rotates in the grinder housing (1), with the addition of water, so that the groundwood is produced in the usual manner. The trough of the grinder underneath the stone is arranged in a



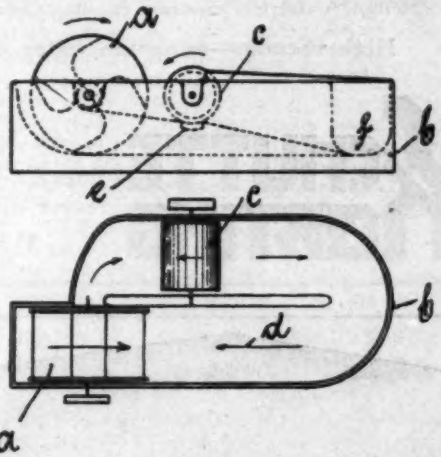
manner required for the attainment of the desired temperature in the stock, which means that the overflow (4) of the stock is arranged at such a point that the stone (2) dips into the stock. This then means that the bottom of the trough is kept at a very short distance from the surface of the stone (2), with the result that the stock is moved along the surface of the stone (2) into the trough and is finally removed from the grinder housing (1). In order that this short distance (between the stone and the bottom of the trough) remains even in worn stones, the construction of the trough must be such that not only the outlet (4) is raised but also the position of the trough itself.

This is attained in the following manner according to the accompanying illustration: The rod (6) is rotated by means of the hand lever (8). The lever (5) is, therefore, also moved about the rod (6) and this shifts the position of the trough (3) on the inclined plane (7), so that the position of the trough (3) with respect to a worn stone is the same as that with respect to a new stone, and the worn stone dips just as deeply into the stock as the new stone. The height of the stock overflow (4) and therewith the depth of the stone in the stock can be adjusted by varying the point of contact of the lever (5) with the trough (8). Linke-Hoffman-Busche Werke, German Patent No. 476,483.

Beater with Stock Disintegrator

THE driving power required for operating a beater can be reduced without reducing the yield of the apparatus, by arranging a device for disintegrating or triturating the stock in front of the beater roll.

As may be seen from the accompanying illustration, the roll (a) is used as a scooping device and this can be built in the form of an open scoop as well as a suction arrangement. It is important that the stock-moving arrangement in the open trough (b) is located at the deepest part of the latter, and of course in that part of the trough where the beater roll (c) is not located. The stock is taken up by the device (a) at the deepest part of the trough under these conditions and lifted to the highest part which is in front of the beater roll (c). The stock is then moved horizontally in the direc-



tion of the arrow (d). The stock then flows to the beater roll (c) dropping down and finally coming into contact with the beater knives, and being carried along by them over the bedplate (e) and eventually reaches the lowest portion of the trough at (f). The beater roll (c) can accordingly be located at any suitable high point and does not have to have as large a diameter as heretofore. For the beater roll now has to perform only its essential beating action, while the circulating device (a) carries out the former auxiliary functions of the beater roll, namely the circulation and lifting of the stock. Furthermore, the manner in which this improved type of beater operates assures that the stock is thoroughly mixed together. H. Loebbecke, German Patent No. 476,485.

New Experiments with Wood Grinders

A NUMBER of grinding tests carried out under different conditions gave the following results: The consumption of power in the case of dull stones is increased by approximately thirteen per cent, and only when the grinding pressure is quite low is the increase in the power slight or nothing at all. It rises proportionally with increase in the grinding pressure and proportionally with the increasing speed of the stone. In the case of dull stones and low grinding pressure the consumption of power for a certain quantity of stock was approximately 44 per cent, with a moderate grinding pressure approximately 34 per cent and at a high grinding pressure approximately twenty per cent greater than in grinding with a sharp stone. The consumption of power per 100 kilograms of stock decreases with respect to the increase in the grinding pressure in 1:2 ratio. Increase of the speed

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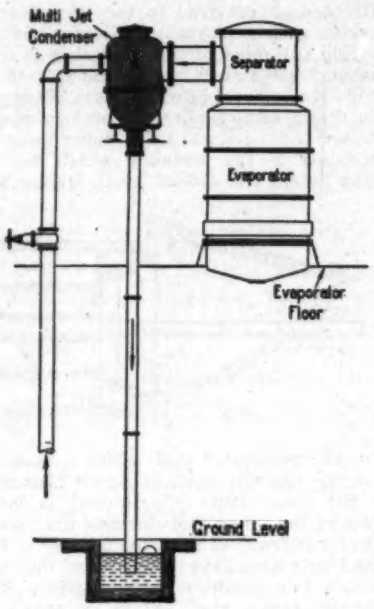

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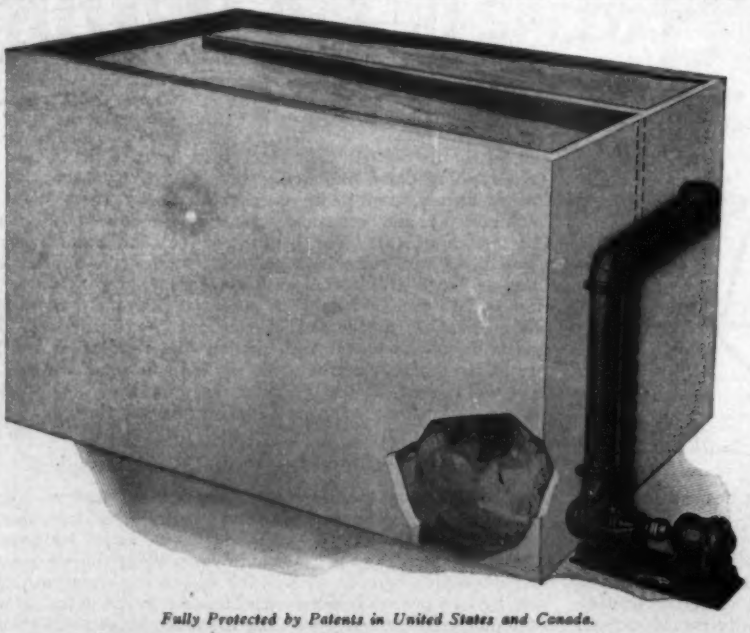

Agitation of Stock

We have developed something new in agitation for paper stock, and can agitate stock of high densities, 6%-8% if desired, in almost any type of chest, at high efficiencies.

We have these working on kraft, sulphite, soda, ground wood, diffuser stock, blow pit stock, and screenings.

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of the stone influences very slightly the consumption of power per 100 kilograms of stock. When the stock is ground with a dull stone, the decrease in production at lower grinding pressures is particularly marked, on the average fifty per cent less than when grinding with a sharp stone. In the case of moderate and high grinding pressures, it amounts to only twenty-five per cent or even fifteen per cent. The production increases proportionally with the grinding pressure and the speed of the stone. The following conclusions were reached from these experiments:

It is more advantageous to sharpen the stone often and only slightly than seldom and to a great degree, and to increase the grinding pressure from a low figure (below one kilogram per square centimeter) to a moderate pressure (1.5 to 1.75 kilograms per square centimeter), than from the moderate pressure to high pressure (over two kilograms per square centimeter). The circumferential speed of the stone is an important factor as far as the production of stock is concerned. It should be as constant as possible and as high as possible, commensurate with operating safety. The circumferential speed should amount to eighteen meters per second. Power is wasted below this speed or in variations from it. C. M. Johansson, Papp. och traevaru-tidskr. foer Finland, volume 11, year 1929, pages 66ff.

Determining Mechanical Wood in Paper

TWO fundamentally different methods are available for determining the percentage of mechanical wood in paper; one based on the use of the microscope, and the other on chemical reactions. The first method requires great skill and care and the results are accurate within plus or minus five per cent. When the tests are made by a number of different chemists and the results are then averaged, the errors due to the personal equation are counterbalanced and better accuracy is obtained. The chemical method also introduces errors due to the fact that it has not yet been possible to precipitate mechanical wood quantitatively from the paper.

The method which is intended only for testing papers which are exclusively composed of sulphite pulp and mechanical wood is practical. The sources of error in this method are the varying percentage of lignin in sulphite pulp and mechanical wood, varying quantity of moisture in air-dried mechanical wood and pulp and neglect to take into consideration the average ash content of the stock.

It has been mentioned that different pulps contain varying amounts of lignin. Furthermore, the lignin content of the pulp contained in the paper that is being tested is unknown. The same is true of the mechanical wood. The average figure for the lignin content of sulphite pulp is taken to be three per cent. This figure is used in a formula which has been developed for determining the mechanical wood in paper. This formula reads as follows:—

$$\% \text{ mechanical wood} = \frac{(L-C)\times 100}{(T-C)}$$

in which L is the grams of lignin in one gram or air-dried paper, T the grams of lignin in one gram of mechanical wood pulp (equal to 0.266) and C the grams of lignin in one gram of sulphite pulp (equal to 0.030).

The trouble is that the percentage of lignin in different sulphite pulps varies and sometimes reaches as high as 8.5 per cent. Thus, for example, if the proportions of lignin in the chemical pulps are 0.089, 0.148 and 0.0207 grams, then the percentages of mechanical wood according to the aforegiven formula would be 25, 50 and 75 per cent. The formula is therefore correct only when the percentage of lignin in the sulphite pulp is three per cent. Zellstoff und Papier, 1929, pages 230-.

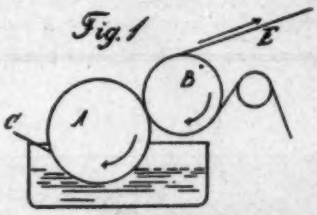
Bleaching Pulp

IN addition to the use of ordinary hypochlorite liquor for bleaching pulp, a certain amount of caustic alkali or hydroxides of the alkaline earths, including magnesium hydroxides, is added to the liquor. This proportion is generally figured as one per cent of the weight of the pulp treated. The alkalinity of the bleach is adjusted in such a manner that the liquor is still slightly alkaline at the end of the bleaching process.

It is claimed that ordinary pulp which contains a certain proportion of incrustating impurities resists the action of the bleach under normal conditions. This difficulty is removed by the presence of the alkali or hydroxides in the liquor. I. G. Farbenindustrie A. G. Austrian Patent No. 112,626.

Coating Paper with a Solution

THE purpose of this process is to coat paper with a thin film the thickness of which can be regulated. The process differs from those in common use in that the film is then removed in its entirety to the paper web. The apparatus which is shown in the accompanying illustration is used in carrying out this process.



is first made on a cylinder made of hard material and this film

Figure 1 shows one method. The distributing cylinder is shown at (A) while (B) is the roll that guides the web (E) and (C) is the doctor. The cylinder (A) dips into the solution. The quantity of material which is taken from the solution is reduced to a uniform film of greater or lesser thickness by means of the doctor (C). The cylinder (B) is preferably made of an elastic material, such as rubber and is pressed lightly against the cylinder (A). All of the liquid is removed by the paper web (E) which passes around the cylinder (B).

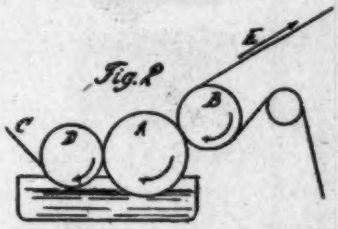


Figure 2 shows another method of carrying out this process. The doctor is here replaced by a regulating roll (D) which makes contact with the cylinder (A). The pressure of the roll (D) against the cylinder (A) determines the thickness of the film on the cylinder (A) and hence the thickness of the film that is transmitted by the cylinder (A) to the paper web (E). C. Munch, French Patent No. 654,814.

Comparison of Zennstroem Process and Other Similar Processes

THE Zennstroem process is concerned with the manufacture of pulp and the recovery of by-products, such as essence of turpentine, methanol, resins, lignin, sulphate of ammonia and pure rosin. The pulp obtained is of good quality and this also applies to the by-products. Not only wood cut especially for papermaking but also wood refuse of various sorts can be used as the raw material in this process. Various resinous woods can also be used. The economy of the process is described and tabulations of costs are given. R. Riviere, Le Papier, 1929, pages 289-291.

Liquifaction and Decomposition of Starch by Means of Biolase and Use of the Product in Papermaking

THE various processes that are employed in the preparation of soluble starch are described and their advantages are listed. This includes processes in which dilute acids, bases, sodium peroxide, oxidizing agents and chlorine are employed. The diastatic action of biolase on various kinds of starch has been studied from the standpoints of the influence of temperature, the duration of the action and the required quantity of biolase. It was found that the most suitable starch was corn starch which is more resistant than potato starch. Suitable apparatus for carrying out the solubilizing process is described. Methods are given for preparing a highly concentrated corn starch preparation which is thinly viscous in the warm state and which gelatinizing when cold. Mixtures of corn starch and potato starch were also used.

The various ways in which these broken down starches can be used in the paper industry are described, mention being made of their use for adhesive purposes, in the manufacture of crepe paper, for surface sizing, in making art printing papers. The question of using the starch in the beater is also discussed. Dr. Hans Wrede, Der Papierfabrikant, 1929, pages 197-202.

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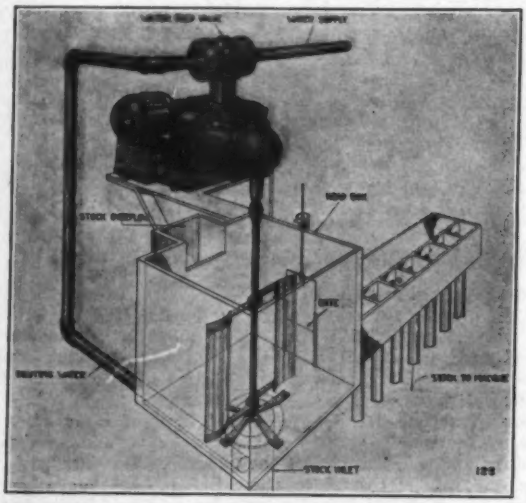

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Role of Sulphur in Sulphate Pulp Manufacture

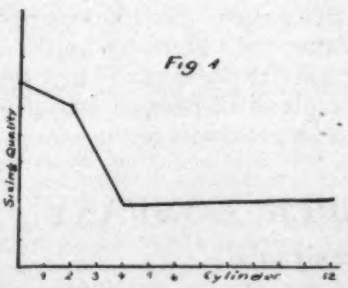
SODIUM sulphide is hydrolyzed to sodium hydrate and sodium sulphydrate during the progress of digestion and these substances react with lignin compounds. Of the used sulphur 36.7 per cent is found combined with lignin, 15.1 per cent in chemical combination with other organic substances, 15 per cent is found in the waste gases in the form of volatile compounds (mercaptans and methyl sulphide), 16.8 per cent in the form of unchanged sodium sulphide and the remainder 16.4 per cent escapes observation. The sodium sulphide compounds are weaker basically than sodium hydroxide and the higher yields are thereby explained. The principal portion of the wood, that is, the lignin compounds, carbohydrates and a small portion of the cellulose, are degraded during digestion into sodium salts or organic acids. In order to recover the sodium of these salts, the black liquor must be concentrated and burnt. When the residue from the black liquor is subjected to distillation, half of the sulphur in the dry residue is evolved in the form of easily volatile compounds. The author believes that the sulphur added along with the sulphate in the digestion liquor and which goes lost for the most part during the digestion and recovery processes takes part only to a slight degree in the recovery process.

A number of tests were carried out on sulphate digesters to determine what actually happens to the sulphur. Approximately 28 per cent of the original sulphur is removed in the form of gaseous compounds during the digestion. When the liquor is evaporated and the residue is dried at 600 degrees C., a portion of the sulphur is lost. Half of the sulphur is in the form of organic compounds in the dried residue. These substances burn to sulphuric acid in the melting ovens. Experiments are also conducted to arrive at a sulphur balance in the entire process. Denisow, Bumaschnaja Promischlennost, volume 7, pages 682ff.

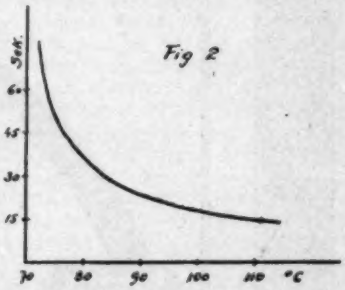
Decrease of Sizing Quality by Moist Paper Web

CONTRARY to the common opinion that machine-dried paper possesses a better sizing quality than air-dried paper, it has been established particularly in the case of thicker papers and cardboard that as the drying continues the sizing quality of the paper decreases. Such a condition is shown in Figure 1. Inasmuch as this phenomenon increases in activity with the thickness of the paper, it can be explained as being due to the action of heat in the presence of moisture.

A one per cent mixture of fiber and water was prepared from sulphite pulp, which had first been sized in the laboratory with alum and rosin milk, and this mixture was used in the first tests to explain this phenomenon, being made into paper sheets by hand. The pulp was treated with three per cent alum, and two per cent of rosin based on the weight of the fiber, the rosin being in the form of milk of rosin containing 7.57 grams of rosin per liter of which thirty per cent was free rosin. The soda number of the rosin was 15.88. The hand-made paper sheets were pressed to uniform moisture content by means of hydraulic pressure, this content being approximately 55 per cent. The moist edges were cut off. The heat treatment of these sheets of paper was carried out between two iron plates which were preheated in a thermostatically-controlled oven and whose heat capacity was so large that the loss of heat in placing the cold paper sheets between the plates could be neglected. The duration of the heat treatment was five minutes. The pH value of rosin left in the moist sheets was 4.3. After this treatment the sheets of paper were dried in air. Then the sizing quality of the paper was tested by drawing on it ink marks of 0.75, 0.50, 0.25 and 0.10 millimeter width. The results were tabulated. The maximum limit of sizing quality was found to lie at 73 degrees C. under these conditions. This temperature should not be exceeded.



In order to determine whether the temperature, 73 degrees C. was critical or whether under other conditions the sizing quality of the paper would be adversely affected at lower temperatures, the following experiment was made at a temperature of 70 degrees C. Other conditions were changed and the moisture was maintained between 60 and 70 per cent. The duration of the treatment was between five and fifteen minutes and the pH values between 3.0 and 6.0. No change was noticed in the sizing quality of the paper in any experiment and it was, therefore, concluded that the temperature of 73 degrees C. was in no way accidental, but is apparently connected with the melting point of the rosin which is identical.



Inasmuch as the change in the rosin requires a certain time for its completion just like any other reaction, experiments were carried out above 73 degrees C. to determine the longest time period that will not longer cause a change in the sizing quality of the paper. The conditions were the same as in the first experiment. The results are shown in graphical form in Figure 2. These results show that the reaction period becomes shorter as the temperature rises.

It is emphasized that the experimental results obtained in this investigation are of great importance in practical rosin sizing. They allow, in the first place adequate explanation of the variation in the sizing quality of paper which has been apparently manufactured under absolutely unchanging conditions. Even the purest kind of washed pulp possesses a variable pH value according to its preliminary treatment, which pH value affects the sizing process. It is consequently necessary to maintain the pH value of the mixture of pulp and water before the wire exactly at the point, 5. E. Oeman, Svensk Papperstidning, volume 31, pages 536ff.

Sulphite Pulp from Pinewood

DECOMPOSITION of pinewood with the usual calcium bisulphite solutions is only possible in exceptional cases when the composition of the wood is uniform, and its rosin content not too high. By complete or partial replacement of the calcium by magnesium or alkali metals better decomposition is obtained; cooking acids containing both magnesium and sodium as bases are specially satisfactory provided that the above limitations to the composition of the wood obtain. The chief cause of trouble is the difficulty of saturating the wood with liquor due to the rapid consumption of sulphurous acid, whereby difficulty soluble normal calcium sulphite is precipitated in the pores of the wood. This separation of calcium sulphite before complete saturation of the wood may be avoided by prolonging the time taken to reach the reaction temperature or by the addition of weak acids such as acetic or phosphoric acid.

The addition of the alkali salts of the chosen weak acid considerably shortens the time of cooking, and their buffering action satisfactorily regulates the pH of the liquid during cooking. This protective action results in the better yield and quality of the cellulose, and a complete and uniform decomposition of non-uniform pinewood of high rosin content may be obtained in a somewhat longer time than is required for spruce wood. The addition of these salts causes better dissolution of the rosin, but it is not possible to reduce the content considerably. The remedy for this is to be found either in pretreatment of the wood or after-treatment of the cellulose. Up to 80 per cent may be removed by extraction with small quantities of sodium hydroxide, and the addition of half to one per cent of sodium hydroxide on the weight of cellulose in the separator or beater should be the simplest way of removing the rosin. Decomposition of pinewood is possible by means of nitric acid, and good cellulose is obtained with no damage to the fiber, but the high consumption of chemicals and the production of hydrocyanic acid are drawbacks. Cellulosechemie, 1929, volume 10, pages 97-107.

Paper that Grew, Ready for Use

When Marco Polo, prisoner of war at Genoa, dictated to Rusticiano, scribe and fellow prisoner, the story of his travels, Europe learned for the first time that Cathay of the Great Khan used paper money.

True enough, it was not our kind of paper. The ingenious Chinese stripped the inner bark of the mulberry tree, stained it black, stamped vermillion characters upon it by means of movable blocks, then beheaded all imitators of this imperial currency.

Polo talked of the population, distance and wealth of Kublai's empire in such large terms that his Venetian neighbors nicknamed him "Marco Millioni." How much less would they have believed the present day immensities of our own United States of America! Here ten million people use paper money they create at the moment of payment—checks, written on paper plentiful enough and economical enough to be used for a single transaction.

HAMMERMILL PAPER COMPANY

Erie, Pennsylvania

New York, September 3, 1929

EVERYTHING considered—the time of the year, the situations in the consuming industries, the absence of many in the trade on vacations, and the general quietness obtaining in the waning days of the summer season—the paper market has exhibited fair activity recently. The market condition has been rather characteristic of the season, however, with consumers and converters mostly confining their buying principally to actual and immediate requirements, and with the bulk of the orders placed calling for comparatively small amounts of paper, and yet the seasonal dullness has not been quite as accentuated as is the case usually in the summer. It can be said, in fact, that business has held up to a higher volume than in years previous during the similar period, and this assertion is founded on the opinions of numerous manufacturers, merchants and others within the industry, but even this being so, the market has not been over-lively by any means.

With the Labor Day holiday past, and with it the unofficial ending of the summer and vacation season, it is probable that demand for most classes of paper will assume much broader dimensions. This is what happens ordinarily, and there is nothing now on the market's horizon to indicate that the same will fail to be the case this year. Instead, there are many signs that the paper industry is on the threshhold of a very active period. Everything seems to point to this fall and early winter being one of the busiest times the industry has ever enjoyed, and an especially encouraging sign is that a large majority in the trade are looking for this to occur and are shaping their plans to meet the expected broad expansion of business.

There are many within the industry, including both producers and distributors of paper, who are hopeful that business will reach such proportions that the unfavorable factor of unprofitable prices may be eliminated, or, if not eliminated, at least relieved. The great fault with the paper industry for some while has been, not a lack of business—and volume business, at that—but a level of prices to the manufacturer and to the merchant which has brought scant remuneration to the producer and seller of paper of most kinds. Of course, competition in marketing has been largely to blame, together with the insatiable desire of some manufacturers to keep their mills running at top capacity in the evident belief that profit is to be realized only by maximum output, but it is likely that many in the industry have altered their ideas in this connection to some extent and that in the future they may seek more to make a profit than to hit the high spots in production. If a sufficient percentage of manufacturers adopt this procedure, there is no doubt whatever that the industry will be put on a sounder and more profitable basis and that the returns accruing to the manufacturer and merchant will be much more substantial and satisfying than has unfortunately been the case in recent years.

There was the usual decrease in paper production in the United States during the month of June, when a total of 557,887 net tons of paper and board of all kinds was produced, as compared with 605,209 tons produced in the preceding month, according to the monthly statistical summary compiled by the American Paper and Pulp Association. The output in June of this year, however, was well above that of 536,913 tons in the corresponding month last year, with all grades excepting newsprint, wrapping and hanging paper recording a gain this year over a year ago. The production of felts and building papers increased 10 per cent over June, 1928; of book paper 9 per cent, of writing paper and paperboard 7 per cent, and of bag paper 2 per cent. Shipments from mills in June aggregated 554,593 tons, contrasted with 599,674 tons in the preceding month, and were 5 per cent in excess of the similar month last year. Mill stocks of all grades of paper at the end of June amounted to 257,123 tons, against 254,137 tons a month before, which was an increase of 1 per cent, but the stocks at the end of time this year showed a reduction of 9 per cent from the same time in 1928, which is indicative that manufacturers are keeping their production down to within the scope of current demand.

A slight gain in newsprint production was recorded in July over the preceding month—taking the output of both United States and Canadian mills combined. The monthly summary of the News Print Service shows that mills in both countries produced a total of 340,623 net tons of newsprint in July, and shipped out 340,118 tons, against 338,462 tons produced and 338,478 tons shipped in June. Production in the United States in July was 111,578 tons, and shipments 112,616 tons, compared with 113,407 tons and 114,558 tons, respectively, in June, while Canadian mills made 229,045 tons and shipped 227,502 tons in July, against 225,055 tons produced and 223,920 tons shipped in June. During July, 21,966 tons of newsprint was made in Newfoundland and 1,744 tons in Mexico, so that the total North American production for the month amounted to 364,333 tons. The Canadian mills produced 194,680 tons more in the first seven months of this year than in the same time last year, which was an increase of 14 per cent. The U. S. output was 19,374 tons, or 2 per cent, less than in the first seven months of 1928, while production in Newfoundland was 13,942 tons or 11 per cent more this year, and in Mexico 2,102 tons more, so that the total net increase in the North American output was 191,350 tons, or 8 per cent, over the first seven months of last year. During July the Canadian newsprint mills operated at 84.8 per cent of rated capacity, United States mills at 76.5 per cent, and Newfoundland mills at 107.2 per cent. Stocks of newsprint at Canadian mills totaled 28,993 tons at the end of July, and at U. S. mills 23,603 tons, making a combined total of 52,596 tons, which was equivalent to 3.3 days' average production.

The production of paperboard in the United States in July totaled 235,944 net tons, showing a small decline from the 240,633 tons produced in the preceding month, but an appreciable increase over the 201,153 tons produced in the same month last year, according to the monthly report on the board industry compiled by the U. S. Department of Commerce. Board mills produced at 76.4 per cent of their rated capacity in July, against 81.4 per cent in June; received new orders calling for a total of 240,113 tons of board, contrasted with 230,835 tons in the preceding month; held unfilled orders for 88,225 tons at the end of July, against 81,880 tons a month before, and shipped out an aggregate of 234,763 tons of board during July, compared with 235,484 tons in June. Stocks of board at mills at the end of July amounted to 63,215 tons, against 62,370 tons a month previously, and 49,969 tons at the same time in 1928.

Newsprint is moving into consumption in a consistent manner, and is about due to show a considerable increase, which, many in the trade believe, will pass all former periods of high consumption during the approaching fall. Writing paper is enjoying fair market activity, with demand for the high grades showing expansion and with most fine paper mills well engaged. A steady demand prevails for book paper, particularly from contract buyers, and prices are maintained. Wrapping paper demand is showing signs of increasing after having held up remarkably well during the summer. Prices are steady quotably with no changes of consequence noted. Tissue is in better call, and steady in price. Fancy papers are moving freely, especially cover stock for paper box work and for Christmas novelties. Demand for boxboard is commencing to broaden and the market currently is fairly active.

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Papermaking Rags

It is nothing unusual for paper manufacturers to purchase rag stock in a cautious manner during the closing days of the summer, generally confining their operations in the rag market to covering actual necessities, and it can be said that this has been the policy pursued recently. At the same time, the market for papermaking rags has displayed fair activity. Most of the orders placed by mills have called for comparatively small amounts, and the bulk of buying has involved chiefly a few certain grades, yet in the aggregate demand has been moderately good for this season of the year, and the market has maintained its steady position both as regards the level of prices obtained and the undertone in values.

Sentiment among dealers is running high concerning the outlook for papermaking rags. The feeling exists that a period of broader activity than has been witnessed in a long time lies ahead of the market, and it must be acknowledged that anticipation in this direction is based on some fundamental factors which appear to promise a better all-round demand for rags from paper mills. It is an established fact that rag-content papers of the higher grades are coming back "into their own" after having passed through a siege during which the trend was away from such papers and toward sulphite writings, bonds and ledgers. Consequently, dealers are looking for paper manufacturers to use more rags during the coming fall and winter than in some while, and there is accordingly no great pressure to market stocks at present because most sellers are content to await market developments in the confident belief that larger business and perhaps higher prices are to be witnessed later in the year.

The supply situation, while not acute nor even serious from the consumer's point of view, is nevertheless rather in favor of the seller. Not as many rags as normally are being collected and sorted, more of the collections are going into channels other than to paper mills—notably, for wiping rag purposes; the production of new cuttings is subnormal and stocks in the hands of dealers are comparatively small, and importations are said to be falling off owing to dealers in Europe enjoying a relatively better market at home for their rags. Labor is so expensive in most parts of the country that rags are not being graded as they were formerly; more are being thrown into roofing stock, and fewer sorted out for paper mills. All of which factors are said to be diminishing the available supply for paper mill consumption.

Prices have recorded very little change in recent weeks. Mill buyers seem satisfied to meet the prices prevailing on such supplies as they desire, and the supply situation, together with the attitude of dealers, is helping to support market rates. Old No. 1 repacked whites are quoted at 5.50 cents a pound in New York City f.o.b. that center, while No. 2 repacked whites are held at around 2.75 cents, repacked thirds and blues at 2.50 to 2.75 cents, and miscellaneous blues at 1.85 cents. It is reported that twos and blues have been sold to paper mills at up around 3.50 cents a pound at shipping points in some cases, and that dealers in general want at least 3 cents for these rags. Roofing rags are moving in a consistent way and at steady prices. No. 1 domestic roofing is bringing 1.80 to 1.90 cents per pound f.o.b. shipping points, and No. 2 domestic stock 1.45 to 1.50 cents, while foreign dark colored cottons are selling at 1.55 to 1.60 cents ex dock New York or other American Atlantic ports.

New cuttings of some grades are firm decidedly in price, particularly fancy shirt cuttings, which are quoted at 6.50 cents a pound at dealers' shipping points; unbleached muslins, at 10.75 cents; O.D. khaki cuttings, at 6 cents; light silesias, at 8.25 cents; blue overall cuttings, at 7.75 cents, and bleached canton flannel cuttings, at 9.50 cents. Higher than these prices frequently are asked. No. 1 new white shirt cuttings are steady quotably at 10.50 to 11 cents a pound, but demand is said to be relatively slow for this grade. Foreign new cuttings are selling fairly well whenever offered, and most grades of imported old rags are being absorbed by paper mills at maintained values.

Average quotations f.o.b. shipping points and ex dock New York are as follows:

New Stock	New York and Chicago
White shirt cuttings, No. 1	10.50–11.00
White shirt cuttings, No. 2	7.00– 7.50
Fancy shirt cuttings	6.50– 6.75
Washables, No. 1	5.50– 5.75
Unbleached muslins	10.75–11.00
White lawns	9.50–10.00
Overall cuttings, blue	7.75– 8.00
Black silesias	4.75– 5.00
Light flannelettes	8.25– 8.50
Canton flannels, bleached	9.50– 9.75
Canton flannels, unbleached	8.50– 8.75
Shoe cuttings, bleached	7.75– 8.00
Shoe cuttings, unbleached	7.00– 7.25
Light silesias	8.25– 8.50
O. D. khaki cuttings	6.00– 6.25
Mixed khaki cuttings	5.00– 5.25
Corduroy cuttings	3.25– 3.50
Cottonade cuttings	3.00– 3.25
Linens, No. 1, white foreign	14.00–15.00
Light prints, foreign	4.00– 4.50
Old stock—	
Whites, No. 1, repacked	5.50– 6.50
Whites, No. 2, repacked	2.75– 3.00
Whites, house soiled	2.00– 2.25
Whites, street soiled	1.85– 2.00
Lace curtains	5.00– 5.25
Thirds and blues, rough	1.80– 2.00
Thirds and blues, repacked	2.50– 2.75
Black stockings	4.10– 4.25
Cotton canvas, No. 1	4.25– 4.50
White cotton batting	3.75– 4.00
Roofing, No. 1 (cloth strippings)	1.80– 1.90
Roofing, No. 2	1.45– 1.50
Linsey garments, foreign	1.80– 1.85
Dark colored cottons, foreign	1.55– 1.60
Blue linens, foreign	4.00– 4.25
Gray linens, foreign	4.25– 4.75
White linens, foreign	8.00– 8.50
Light prints, extra, foreign	2.50– 2.75

Rope and Bagging

Prices of old rope have steadied following a fairly sharp recession, and indications are that paper manufacturers now are manifesting more buying interest at the lower values prevailing. Domestic No. 1 old manila rope is bringing 4.75 cents a pound f.o.b. shipping points, with reports heard of some purchases at slightly under this price and yet with dealers asserting that they are receiving as high as 5 cents in some sales. Foreign old manila rope is reported available down around 4.25 cents ex dock New York, with prices said to be relatively lower than on domestic rope. Offered supplies appear to be moderately ample although dealers and importers are putting much stress on the limited amounts of good-quality old rope coming forward from collection sources.

Bagging is improving in demand, with business recently having increased fairly substantially, but prices show little or no change. No. 1 scrap bagging is still selling to tissue

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Jones Brothers Company

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paper mills at 1.60 and 1.65 cents a pound f.o.b. dealers' points, while roofing bagging is stationary in price at 1.25 cents to a shade higher. Gunny is quiet, and nothing more than routine demand is noted for old wool tares.

F.o.b. shipping point and ex dock New York quotations follow:

	New York and Chicago
Gunny, No. 1 domestic	1.55–1.65
Gunny, No. 1 foreign	1.50–1.60
Scrap bagging, No. 1	1.60–1.65
Roofing bagging	1.25–1.30
Wool tares, heavy	1.65–1.75
Wool tares, light	1.55–1.65
Manila rope, No. 1 foreign	4.25–4.50
Manila rope, No. 1 domestic	4.75–5.00
Sisal strings	1.75–2.00
Mixed strings	.90–1.10

Old Paper

The market for old paper is looking up after having passed through its customary dull summer season. There is more demand from mills, especially from boxboard plants, and prices of some grades have strengthened slightly. The opinion in the trade is that demand is due for considerable expansion as the autumn wears on, and dealers are practicing care in entering selling commitments at present while expecting higher prices later.

Low grades have improved their price position in the East to where No. 1 mixed paper is selling at 50 cents per hundred pounds f.o.b. New York, and folded news at 60 cents. Soft white shavings are moving freely but on a wide price range, according to quality. Some grades of soft white shavings are fetching up around 2.90 cents a pound at shipping points, whereas other packings are reported available at as low as 2.40 cents per pound. Not much demand exists for hard white shavings but the extra grades are bringing 3 cents a pound and perhaps higher, with prices scaling down to about 2.60 cents. Heavy No. 1 books are selling at 1.30 to 1.35 cents a pound f.o.b. New York, ledger stock at 1.15 to 1.40 cents a pound, depending on the quality, and old No. 1 kraft paper at around 1.90 cents per pound.

The following are quotations named by dealers f.o.b. shipping points:

	New York and Chicago
Hard white shavings, No. 1	2.60 –3.00
Hard white shavings, No. 2	2.40 –2.60
Soft white shavings	2.40 –2.90
Colored shavings	1.00 –1.25
Heavy book, No. 1	1.30 –1.40
Crumpled book, No. 1	1.00 –1.10
Ledger stock	1.15 –1.40
Kraft, No. 1	1.80 –2.00
New kraft cuttings	2.40 –2.60
Manilas, No. 1	.70 – .90
Folded news	.60 – .70
Sulphite mill wrappings	.75 – .85
Old corrugated boxes	.65 – .70
New corrugated box cuttings	.75 – .85
Mixed paper, No. 1	.47½– .55
Common paper	.40 – .45

Pulpwood

There is very little fresh activity in the pulpwood market because there is little supply now being offered except on contract for the winter season. Consumers are arranging contracts for their forward supplies, and it is stated that firm prices prevail.

Exports of pulpwood from Canada during the first seven months of this year, all of which came to the United States, totaled 742,012 cords, valued at $7,332,441, showing a considerable decrease as compared with the 931,357 cords of a value of $8,917,914 exported in the similar period of 1928.

Mechanical Pulp

A distinctly firm tone characterizes the mechanical pulp market, and prices exhibit a strong advancing tendency. As a matter of fact, very little supply is being offered in any producing quarter. Serious droughts in most grinding regions

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LOCKPORT, N. Y.
CARTHAGE, N. Y.
PENSACOLA, FLA.
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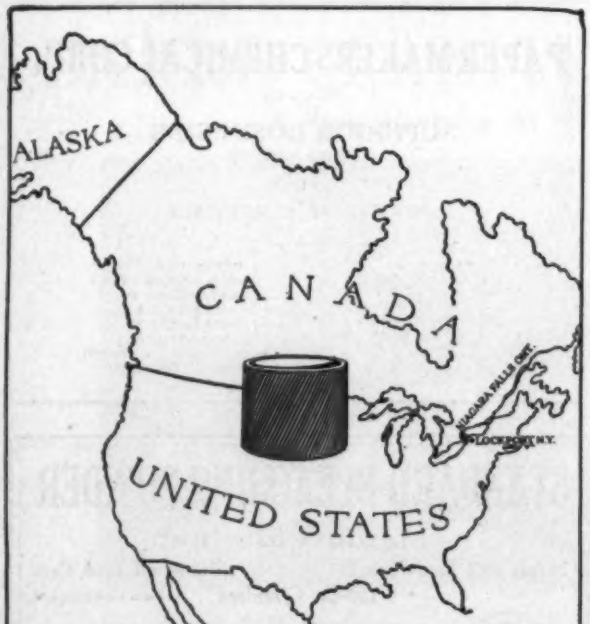

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have hampered manufacturers in their grinding operations to a degree where they have scarcely any groundwood to dispose of in the open market since they are somewhat up against it satisfying their own needs and keeping their contract customers supplied. Domestic groundwood is reported practically out of the market insofar as concerns any pulp available to transient buyers, and most of the groundwood now figuring in open-market transactions is either Canadian pulp or pulp imported from Europe.

The nominal market price of domestic prime groundwood is about $28 or $29 per ton f.o.b. grinding plants. Canadian grinders are quoting $26 and higher a ton for prompt shipments, and Scandinavian groundwood is on a quotable level of about $36 per short ton for dry and $34 for wet pulp ex dock American Atlantic ports.

Mills in the United States produced a total of 92,895 tons of groundwood in June, contrasted with 108,144 tons in the preceding month, according to identical mill reports to the American Paper and Pulp Association. Stocks on hand at mills at the end of June amounted to 120,386 tons, against 116,326 tons a month earlier.

Chemical Pulp

The chemical wood pulp market is possessed of a steady undertone and is enjoying fair activity. Producers are well sold up for some time to come, are operating their plants on a good scale and are shipping out their product freely on contracts and also on transient orders which are coming in to them regularly. There has been no material alteration in market prices. Values are rather stationary though fully maintained, with the tendency, if anything, in an upward direction on most classes of pulp. Bleached sulphite is selling at 3.75 to 4 cents a pound f.o.b. pulp mills for the more popular grades, and at substantially higher prices for the extra qualities. Unbleached sulphite is steady quotably at 2.50 to 2.75 cents for newsprint grade and at 3 cents or close to that figure for book qualities. Bleached soda pulp is around a price level of 3.50 cents a pound delivered paper mills, and No. 1 domestic kraft pulp is selling at 2.75 to 3 cents a pound.

Production of chemical pulp in the United States during June amounted to 127,796 tons, compared with 137,015 tons in May, according to the American Paper and Pulp Association, while mill stocks at the end of June aggregated 20,263 tons, against 19,304 tons a month before.

Quotations f.o.b. pulp mills are as follows:

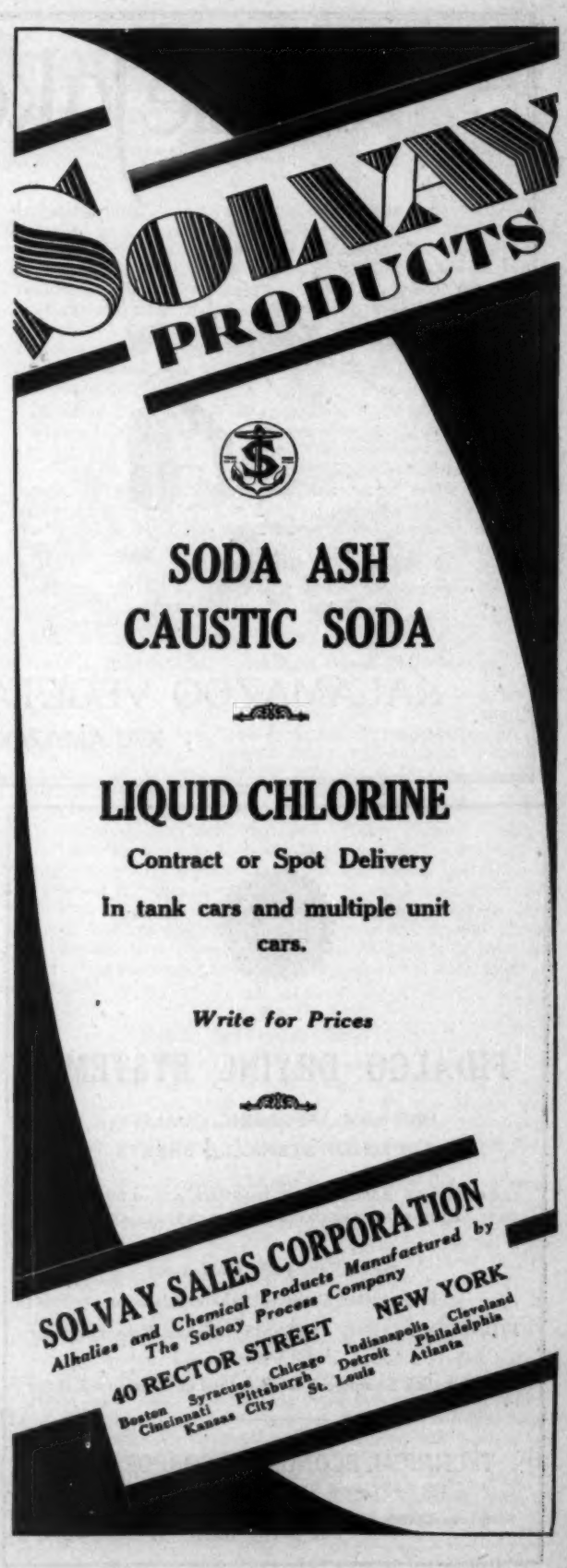
Bleached sulphite	3.75–4.75
Easy bleaching sulphite	2.75–3.00
Unbleached sulphite, No. 1 strong (news grade)	2.50–2.75
Unbleached sulphite, No. 1 book	2.75–3.00
Soda pulp, bleached (delivered)	3.35–3.60
Mitscherlich, unbleached	3.00–3.25
Kraft, No. 1	2.75–3.00
Screenings, refined	1.60–1.85

Chemicals

Casein prices have stiffened slightly to where the domestic product now is quoted at 15 to 16 cents per pound, and the imported article at from 15.50 to 16 cents. Demand for bleaching powder is steady and quotations are stationary at 2 to 2.35 cents a pound in large drums f.o.b. works. Caustic soda and soda ash are moving well and prices are steady.

Average quotations are as follows:

Alum, lump ammonia	3.50 – 3.75
Alum, lump starch	3.75 – 4.00
Blanc fixe, powder	3.50 – 3.75
Bleaching powder	2.00 – 2.35
Brimstone (long ton, at mine)	18.00 –20.00
Casein (duty paid)	15.00 –16.00
Caustic soda, spot delivery	2.90 – 3.00
China clay, domestic washed	8.00 – 3.00
China clay, foreign	15.00 –12.00
Rosin, Grade E	8.45 – 8.55
Satin white	2.00 – 2.25
Soda ash, 50 per cent light (bags)	1.32½– ....
Starch, papermakers', in bags	3.82 – ....
Talc (ton)	16.00 –18.00



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Unbleached Sulphite 50 tons daily
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We ship in Sheets, baled

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Writing—	
White rag	15–40
White sulphite	9–30
Colored rag	15–40
Colored sulphite	8–30
Ledger	
White rag	16–40
White sulphite	10–30
Colored sulphite	10–30
Colored rag	15–40
Bond—	
White rag	16–40
White sulphite	8–30
Colored sulphite	8–30
Colored rag	15–40
Book—	
No. 1 S. & S. C.	5.75– 8.00
Machine finished	5.50– 8.00
English finish	5.50– 8.00
Coated and enameled	7.50–12.00
Lithograph, M. F.	7.50–12.00
Newsprint—	
Rolls, contract, per ton, delivered New York	62.00–
Rolls, transient, per ton, delivered New York	62.00–
Steets, per ton, delivered New York	67.00–
Side runs, per ton, delivered New York	47.00–52.00
Covered stock—	
Coated, both sides	–10.25
Coated, one side	–10.15
Tissue—	
No. 1 white, 20x30	.75– .90
No. 2 white, 24x36	.75– .90
No. 1 Manila, 24x36	.75– .80
Kraft	.95–1.10
Wrapping—	
No. 1 kraft	5.75–6.25
No. 2 kraft	4.75–5.25
Southern kraft	4.75–5.25

Boards—	New York and Chicago
Solid news	40.00–45.00
Straw	50.00–55.00
Plain chip	35.00–37.50
White coated chip	50.00–55.00
Manila coated chip	45.00–50.00
Binder's board	65.00–70.00

Duty on Decorated Paper

The United States Customs Court has decided a test case involving the dutiability of decorated handmade paper under which several hundred protests are pending before the court. Justice Fischer in his decision holds that although the lined effect produced in the paper is part of the papermaking process, it is still a decoration within the intent of the law, and he has therefore held the paper to be subject to an additional 10 per cent duty. The paper was imported from Italy, and the Import Committee of the American Paper Industry considers the decision of the greatest importance as it construes decoration of writing papers to be not necessarily a secondary process by special equipment, but the appearance of the paper itself, even when made in a single process.

Truth in Advertising Enforced—The Federal Trade Commission has announced that a corporation selling and distributing foreign and domestic papers caused its name to be featured in its price list with the words "Manufacturer and mill agent." Also the advertising included the words, "This is printed on Cockle Rag Onion-Skin paper, our own manufacture." The fact was, says the Federal Trade Commission, that the corporation did not own or operate a mill and has now signed a stipulation agreeing to desist from these misrepresentations. The action was taken because of a complaint filed at the instance of the Import Committee of the American Paper Industry.

Evading Payment of Proper Duties—A case pending in Cleveland is an example of the manner in which foreign exchange is manipulated to give the importer an opportunity to evade the payment of proper duties. The shipment was of paper squares used for the manufacture of artificial flowers and sensitized barometric dolls. In making the computation for charges and home market value the importer used two exchange rates, one of 47½ cents, the other of 44.8 cents. By this use of two exchange conversion rates the importer, according to the government's claim, entered his goods at about 6 per cent below the true value.

Glatfelter Co. Installing New Equipment

Announcement is made by P. H. Glatfelter Co., Spring Grove, Pa., that contract has recently been given to the Pulp Bleaching Corp., New York City, for the installation of two Wolf High Density Bleachers, which will be used in connection with the present Bellmer equipment, thereby changing over the present process to two-stage bleaching.

The entire bleaching department is being renovated and new washing equipment installed. These changes will not only increase the bleaching capacity from thirty-five tons to seventy or eighty tons per day, but will enable the company to produce a better grade of pulp. In the beater room five Mid-West Hi-Speed beaters will replace eight old-type Umpherson beating engines. A new jordan and several of the new beaters have already been installed, and it is expected these improvements will be completed by the first of November.

Paper Salesmen Play Golf

The Chicago Division of the Salesmen's Association of the Paper Industry held its golf outing on August 21 at the Westmoreland Golf Club as guests of Warren Moore and Harry Johnson, of the Brown Company. Weather conditions were exceptionally favorable and a bang-up good time was enjoyed by all.

Low net was won by Charles Forester, of the Container Corporation of America; low gross on either nine, was won by Harry Johnson, of the Brown Company; low putts on the eighteen was won by Ed Schaeffer, of the Mississquoi Pulp & Paper Company. Blind bogey was won by E. H. Miller, president of the Heco Envelope Company; a prize for a mysterious feat donated by the person known only as "Gloomy Gus" was taken by Jack Burruss, of Albemarle Paper Mfg. Co., for the most putts on the eighteen.

Among several out-of-town people present at the outing was Arthur H. Nevius, of Oxford Miami Paper Company.

Plans have been laid for the final tournament, at which time the Chicago Division expects to clinch the Harbison trophy for the middle west again, and also has designs on the president's prize. The outing is to be held on Thursday, September 19 at the Wilmette Golf Club. There will be many prizes, including a special division prize known as the vice-president's prize. From all appearances this will be a large and successful outing.

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PAPER

EXPORTS

Exports of paper from the United States in June recorded a fair increase over the shipments in the preceding month and also a gain over the exportations in the corresponding month last year, according to official statistics compiled and issued by the U. S. Department of Commerce in Washington. During June, exports of paper of all kinds amounted in value to $2,928,948, compared with $2,831,715 in May of this year and $2,826,076 in June a year ago. Exports during the first six months of 1929 reached a total value of $18,892,239, showing an appreciable gain over the shipments valued at $15,275,095 in the first half of 1928.

Exports of newsprint in June were 2,739,306 pounds, valued at $110,509, which was an increase over the 2,394,816 pounds of a declared value of $84,986 exported in the preceding month, and almost double the value of the exports in June, 1928, amounting to 1,732,735 pounds of a value of $59,689. Wrapping paper exports in June amounted to 3,211,566 pounds, valued at $230,455, against 3,921,029 pounds of a value of $244,647 in the preceding month, and 2,603,069 pounds of a value of $195,374 in June last year, while exports of uncoated book paper in June were 2,380,024 pounds, valued at $176,810, contrasted with 3,254,371 pounds of a value of $210,607 in May last, and 2,974,180 pounds of a value of $199,725 in June a year ago. Writing paper to the amount of 1,955,333 pounds and valued at $220,218 was exported in June, against 2,246,997 pounds of a value of $233,801 in the similar month last year, and exports of sheathing and building paper climbed from 1,236,178 pounds of a value of $44,416 in June, 1928, to 2,084,925 pounds of a value of $70,157 in the same month this year.

Export shipments of boxboard from the U. S. were 5,890,507 pounds, valued at $158,436, in June, against 4,135,381 pounds of a declared value of $107,348 in June a year ago, while exports of other paperboard and strawboard reached a value of $168,814 in June, compared with $176,196 in June, 1928.

IMPORTS

Wood Pulp

There is a steady to firm market prevailing for wood pulp, with the statistical position seemingly growing stronger all the time and with business developing in fairly large volume and in a consistent manner. Paper and board manufacturers are purchasing pulp freely; notwithstanding that buying thus far this year has been on an exceptionally broad scale, demand is keeping up in a way that is creative of a brisk market and pronounced firmness in values.

Briefly, the present market situation in the different classes of chemical pulp is as follows: Strong unbleached sulphite is strong in price and in a strong technical position, with prices inclining upward and with offerings from supply sources at best restricted; bleached sulphite is steady but there is an easier supply situation with such pulp much more available than unbleached and with sellers in some instances appearing ready to grant slight price concessions; easy bleaching sulphite is firm, comparatively scarce as far as offered supplies of prime grades are concerned, and if anything tending higher quotably, and kraft pulp is steady in price with supplies fairly plentiful but with producers now bent on procuring the full prices asked.

A feature of the market situation is that consumers in the United States not only have bought heavily for shipment during the balance of this year or up until the next closed navigation season over the Baltic, but are placing contracts for shipments in 1930 on a relatively large scale. There seems to be little hesitancy on the part of paper manufacturers to buy for next year, particularly as regards those mill brands of sulphite and kraft which they are accustomed to using regularly, and which they appear eager to make sure that their forward requirements, insofar as they can be gauged, are fully covered. Late reports from Scandinavia say that not only have mills there disposed of just about their entire production for the rest of the current year, but that their sales for 1930 have reached such dimensions that the great bulk of the output for the first half of next year is now under contract. The fact that consumers in the United States are buying ahead so readily is indicative that they do not expect any lower prices of pulp, and the upward tendency in some grades—more particularly strong sulphite—probably is causing paper makers to buy as freely as they are.

Prices quoted on strong unbleached sulphite of prime quality most often are 2.80 to 2.85 cents a pound ex dock New York or other American Atlantic ports, and some grades are priced at above this level. Offerings of such pulp are limited decidedly; in fact, it is asserted that the brands of certain mills abroad are no longer available for shipment this year, and not by any means in plentiful supply for next year since they have been contracted for so largely. Prime easy bleaching sulphite is quoted at 2.85 to 3.10 cents per pound ex dock New York, and also is offered rather sparsely, owing to producing mills being well sold up. Bleached sulphite prices are not characterized by the strength in unbleached but nevertheless are ruling steady, with prime bleached quoted on a range of 3.65 to 4 cents a pound on the dock and with extra qualities fetching 4.25 and 4.50 cents. Importers in some cases say they are selling the grades bringing up around 4.25 cents without any difficulty at all, and that such pulp is in relatively more demand than the lower-priced lines of bleached sulphite. Kraft of prime Swedish standard grade is selling at 2.45 to 2.50 cents a pound ex dock New York. Quotations on next year's shipments are generally at a slight recession from these rates, or about a dollar per ton less. Foreign prime groundwood is quoted at $36 a short ton for dry and $34 for wet pulp ex dock American Atlantic ports for forward shipment from abroad, and it is reported that demand from consumers is increasing, reflecting the tightening of available supplies of domestic and Canadian groundwood in the market here.

Current market quotations ex dock New York are as follows:

Bleached sulphite, No. 1	3.65– 4.25
Unbleached sulphite, strong No. 1	2.80– 2.90
Unbleached sulphite, No. 2	2.60– 3.10
Easy bleaching sulphite	2.85– 3.10
Mitscherlich unbleached, genuine	3.00– 3.25
Mitscherlich unbleached, ordinary	2.75– 3.00
Kraft, standard Swedish	2.45– 2.50
Groundwood, per ton (dry)	35.00–36.00

Apparently a new high record of wood pulp importations into the United States is being established this year, if the statistics covering the first six months of the year can be taken as a criterion. More pulp by a big margin was imported into this country in the first half of the current year than ever before in a similar period of time. During June, imports of chemical pulp reached a total of 137,903 long tons, according to official figures compiled by the U. S. Department of Commerce, which were valued at $7,922,720, and which came close to constituting the largest amount of chemical pulp ever before imported in a single month, comparing with 108,919 tons

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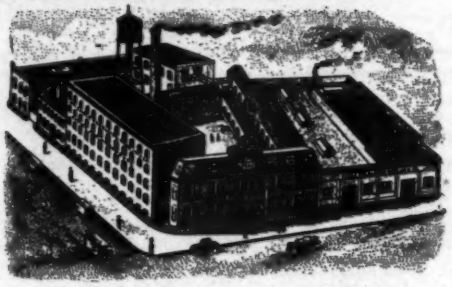

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Unexcelled for strength, openness, resiliency, and general running qualities. Made to meet the most exacting conditions on all types of machines and all kinds of papers. Only one grade and that the highest.

Made by

DRAPER BROTHERS COMPANY

CANTON, MASS.

Woolen Manufacturers Since 1856

REPRESENTATIVES

L. H. BREYFOGLE, Kalamazoo, Mich. INTERNATIONAL TRADING CO., Philadelphia, Pa.

PACIFIC SALES COMPANY, Security Bldg., Portland, Ore.

of a value of $6,353,782 imported in the preceding month, and 109,533 tons of a declared value of 6,388,867 in the corresponding month last year. The June imports also compared with 135,036 long tons imported in January last, which stood as the largest month's importations in any previous month this year up until June.

The June imports brought up the total chemical importations for the first six months of this year up to 673,882 long tons, valued at $39,059,154, according to Government figures, showing an increase of 78.000 tons over the total of 595.571 tons of a value of $34,623,300 imported in the similar time of 1928. In other words, in each of the first six months of the current year imports of chemical pulp exceeded those of last year by 13,009 tons monthly, the average monthly importations this year being 112,313 tons, and in the same time last year 99,261 tons.

Imports of bleached sulphite in the first half of this year totaled 168,027 tons, valued at $12,708,685, contrasted with 145,526 tons of a value of $11,009,050 in the same time of last year, while imports of unbleached sulphite were 325,833 tons of a value of $15,301,364, against 294,129 tons of a value of $14,778,244 last year. Imports of unbleached sulphate or kraft pulp in the six months' period were 167,041 tons, valued at $9,173,410, compared with 147,751 tons of a value of $8,303,355 in the same time a year ago.

Groundwood imports in June last amounted to 21,441 long tons, of a declared value of $539,836, compared with 18,789 tons of a value of $438,500 in the preceding month, and 18,329 tons of a value of $430,728 in June, 1928. The total imports of groundwood in the first six months of this year were 111,528 tons, valued at $2,826,597, contrasted with 111,408 tons of a value of $2,729,913 in the corresponding period last year.

Paper Stock

Importations of rags for papermaking into the United States during the first six months of this year, according to official statistics compiled and issued by the U. S. Department of Commerce, totaled 211,729,844 pounds, of a declared value of $4,268,358, showing a slight increase over the 210,197,802 pounds of a value of $3,907,175 imported in the similar period of last year. The June imports were 41,063,836 pounds of a value of $862,963, against 38,612,964 pounds of a value of $699,963 in the same month last year. These figures show that the value of the papermaking rags imported in the first half of this year averaged in value 2.01 cents per pound, as compared with 1.85 cents in the corresponding period a year ago, which indicates that a larger proportion of the better grades of such rags has been imported this year than last, since it is believed that market price levels have undergone little change, with the result that the increased value of the rags imported this year as contrasted with last year must be due to a larger percentage of high quality rags in the imports.

Imports of waste bagging and waste paper in June amounted to 14,378,718 pounds, valued at $172,979 bringing the total for the first six months of this year up to 71,927,266 pounds of a declared value of $872,693, compared with 72,931,325 pounds of a value of $1,047,073 in the similar time of last year. Imports of old rope and miscellaneous paper stock during June were 12,082,225 pounds, valued at $355,338, bringing the total for the first half of this year up to 52,183,381 pounds of a value of $1,674,901, and showing an appreciable gain over the 31,331,946 pounds of a value of $886,389 imported in the first six months of 1928. This increase is believed to have been principally in old rope, as it is known that imports of this papermaking material have been on the rise.

Paper

Imports of paper into the United States in June, 1929, reached a total value of $13,480,291, recording a little decrease from the importations of a declared value of $13,909,592 in the preceding month, but a gain over the imports valued at $12,025,928 in the similar month a year ago. Imports of paper of all kinds during the first six months of 1929 were valued at $77,305,244, showing a slight increase over the importations of a value of $75,934,981 during the corresponding period last year.

Newsprint, of course, constituted the bulk of the paper imports into the United States in the first half of this year,

MITTS & MERRILL

Conveyor or Gravity Feed Shredder

Give Beaters a Lift

The MITTS & MERRILL SHREDDER through it's economical method of preparing stock for the beater contributes much to the completion of the beater's work in the shortest possible time, thereby cutting down operating costs and speeding up the process of paper making.

MITTS & MERRILL SHREDDERS are built in sizes with spouts ranging from 18" to 45" wide. We will be glad to quote you on any size adapted to your requirements.

It gives the beater an economical lift.

MITTS & MERRILL
1013 Tilden Street Saginaw, Mich.

We also build a 100% efficient "Hog" to reduce pulp mill bark and wood refuse.

See pages 364 and 365 in the 1928 Paper and Pulp Mill Catalogue

Morey Paper Mill Supply Co.

Vulcan TRADE MARK

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SOLE SELLING AGENTS

Vulcan TRADE MARK

Double Enameled Fourdrinier Aprons

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Particularly adapted for use with Voight Inlet Careful, Intelligent, Quick Service

EASTWOOD

FOURDRINIER-CYLINDER-WASHER

WIRES

EASTWOOD WIRE CORPORATION, BELLEVILLE N.J. U.S.A.

COMBINATION—

Skill and Experience

RESULT—

"Tannite" Deckle Straps

Manufactured by

STOWE & WOODWARD COMPANY

NEWTON UPPER FALLS, MASS., U. S. A.

SKANEATELES FALLS, N.Y.

NEW YORK STATE

The Place Where GOOD FELTS Come From

WET FELTS for

TISSUE MACHINES

FREE RUNNING—LONG LIFE

THE WATERBURY FELT CO.

TRADE MARK REGISTERED SKANEATELES FALLS, N.Y.

receipts of such paper amounting to 2,263,431,353 pounds, valued at $68,470,491, against imports of 2,068,350,409 pounds of a value of $67,570,558 in the same time of 1928. Newsprint imports in the first half of this year came from the following countries: Canada, 2,095,498,919 pounds, valued at $64,024,-836; Newfoundland and Labrador, 80,408,861 pounds, valued at $2,259,723; Sweden, 45,483,058 pounds, valued at $1,158,-906; Finland, 29,385,016 pounds, valued at $709,489; Norway, 4,520,141 pounds, valued at $112,919, and Germany, 7,922,558 pounds, valued at $200,266.

Imports of other printing paper in the six-month period were 2,229,853 pounds of a value of $104,420, compared with 3,967,682 pounds of a value of $187,810 in the similar time last year. Imports of kraft wrapping paper were somewhat larger in the first six months of this year contrasted with a year ago, amounting to 4,611,224 pounds of a value of $197,-362, against 3,167,989 pounds of a value of $135,250, whereas imports of other wrapping paper decreased rather sharply from 9,061,448 pounds of a value of $191,542 in the first six months of 1928 to 3,644,791 pounds of a value of $103,546 in the same period this year.

Imports of writing, letter and drawing papers in the first half of 1929 amounted to 1,577,690 pounds, valued at $393.886, showing a little gain over the 1,427,317 pounds of a value of $356,119 imported in the same time a year ago. Tissue and copying papers imported in the first half of the current year reached a total of 2,222,237 pounds, valued at $1,188,902, contrasted with 1,527,807 pounds of a value of $960,590 in the similar period of 1928, and cigarette paper importations amounted to 5,446,322 pounds of a value of $1,778,636 in the first half of this year, against 6,011,690 pounds of a declared value of $1,635,276 imported in the corresponding time last year.

Imports of paperboards have shown a general increase this year over a year ago, receipts of pulpboard in rolls amounting to 31,084,632 pounds of a value of $689,512 in the first six months of 1929, compared with 29,101,446 pounds of a value of $645,591 imported in the same time last year, and imports of leatherboard, test and wallboard amounting to 861,441 pounds of a value of $34,060, against 546,405 pounds of a value of $14,754 last year, and imports of other paperboard, pulpboard, and cardboard amounting to 11,998,399 pounds of a value of $273,550, compared with 11,422,373 pounds of a value of $255,500 in the first half of 1928.

Importing Pulpwood from Russia

A cargo of pulpwood from Archangel on the White Sea arrived at the Hammermill Paper Company docks in Erie on Tuesday, August 20. It was loaded at Archangel aboard the S. S. Quercus which left that port on July 21. The cargo was transhipped at Three Rivers, Quebec, to Welland canal steamers for Erie.

According to Charles W. Hurtibis, manager of the woodlands department of the Hammermill Paper Company, negotiations for the purchase of the wood were carried on last winter with representatives of the Soviet government and it is Hammermill's intention to find out how it competes, commercially, with the wood on the North American Continent. Hammermill gets most of its supply from its own vast tract at Matane, Quebec, and from other sources in western Ontario, with Port Arthur and adjacent ports on the north shore of Lake Superior as shipping points.

Elder Wins Position at Mass. Tech.

Robert F. Elder of Berlin, N. H., was the winner of the first prize of $1,000 in the Alvan T. Simonds economic contest for 1928 on the subject "Reducing the Costs of Distribution." This is not the only prize that Mr. Elder has won as the result of his essay submitted in this contest. He has just been appointed instructor in marketing at the Massachusetts Institute of Technology. The authorities at this institution write that "Mr. Elder came to our attention as the result of his prize-winning essay. We probably never would have known of his talents had it not been for the prize offered by Mr. Simonds."

Mr. Elder's essay was published in the August, 1929, issue of THE PAPER INDUSTRY.

A Good Team . . .

Silicate and Clay

Silicate of Soda makes clay more fluid, when it is suspended in water. Mills making book paper take advantage of this fact to handle their clay at a much greater density than would otherwise be possible. The silicate when precipitated in the beater helps the retention of clay in the paper, though the amount necessary for making the clay fluid is not enough to give maximum effects.

Other mineral substances, including colors, are better retained when silicate is used. May we tell you more about the advantages to you of using Quartz Quality Silicate in your mill?

Philadelphia Quartz Company

General Offices: Philadelphia, Pa.

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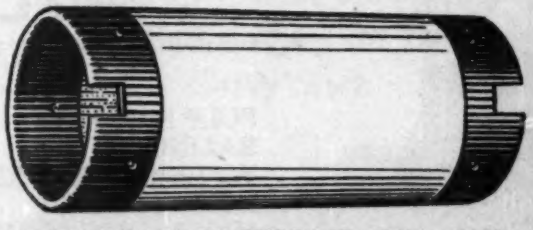
ELIXMAN PAPER CORE CO., INC.

Corinth, N. Y. U. S. A.



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MANUFACTURERS OF

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ANIMAL SIZING GLUE STOCK

LARGEST SPECIALISTS IN AMERICA ON

FINE WRITING PAPER SIZING

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IMPROVED BADGER BLACK LIQUOR EVAPORATORS

Recent Installation
CHAMPION
FIBRE CO.
Canton, N. C.

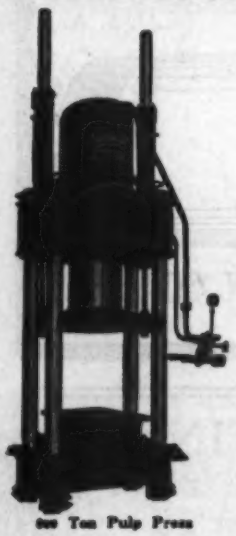
NON-FOAMING

MAXIMUM
STEAM ECONOMY

NO ENTRAINMENT

SODA and
SULPHATE
PROCESSES

E. B. BADGER & SONS CO., Boston, U. S. A.



One Ton Pulp Press

SOUTHWARK

Hydraulic Equipment for Pulp and Paper Mills, Wall Board Plants, Etc.

PULP PRESSES
BALING PRESSES
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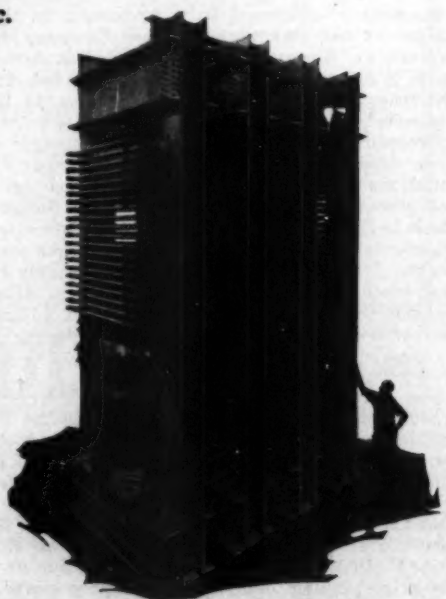
PULP TRUCKS
HYDRAULIC PUMPS
ACCUMULATORS
VALVES, FITTINGS, ETC.

Southwark Hydraulic Equipment is the choice of the largest and best known Pulp and Paper Mills throughout the country. They find Southwark products give the most efficient service under exacting conditions. Write for Bulletin No. 14.



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20 Opening Wall Board Press

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400 WASHINGTON AVENUE
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100 E. SOUTH ST.

Foreign Trade Opportunities

The following foreign trade opportunities are issued by the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce. Those interested are requested to communicate with the Bureau at its offices in Washington or New York or its branch offices in other cities, in every case mentioning the number of the inquiries referred to.

No. 39702—Paper bags for draper trade, and transparent paper bags, Wellington, New Zealand. Agency and purchase desired.

No. 39699—Card and bristol board. Montevideo, Uruguay. Purchase desired.

No. 39734—Paper cups and napkins. Osterbeek, Netherlands. Purchase desired.

No. 39698—Kraft paper, pasteboard for boxes, and papyrus products of all kinds. Montreal, Canada. Purchase and agency desired.

No. 39700—Paper milk bottles. Helsingfors, Finland. Agency desired.

No. 39701—Milk bottles of paraffin paper. Hamburg, Germany. Agency desired.

No. 39756—Printing paper, white and colored; coated art paper and boards; typewriter paper; duplicating paper, and machine-glazed pure and brown kraft paper. Alexandria, Egypt. Agency desired.

No. 39679—Chemical wood pulp. Milan, Italy. Agency desired.

No. 39656—Paper specialties. Montreal, Canada. Agency desired.

No. 39697—Wall paper, paper napkins, and fancy crepe paper. Shanghai, China. Purchase and agency desired.

No. 39662—Writing paper. Karachi, India. Agency desired.

No. 39703—Writing paper, high grade. Quebec, Canada. Agency desired.

No. 39679—Paper mill machinery. Milan, Italy. Agency desired.

No. 39705—Paper, wood pulp and cellulose manufacturing machinery. Rechenberg, Germany. Purchase desired.

No. 39861—Bond paper. Shanghai, China. Agency desired.

No. 39860—Vulcanized fiber. Hamburg, Germany. Agency desired.

No. 39893—Paper towels. Batavia, Java. Agency desired.

No. 39813—Writing, wrapping and newsprint paper. Bahia de Caraquez, Ecuador. Purchase desired.

No. 40027—Cardboard, carton, and newsprint paper. Havana, Cuba. Agency desired.

No. 40028—Condenser tissue. Vienna, Austria. Purchase desired.

No. 40001—Fish paper. Ludwigshafen, Germany. Purchase desired.

No. 40057—Paper. Santo Domingo, Dominican Republic. Agency desired.

No. 40026—Wood pulp, mechanical and chemical. Pescia Italy. Purchase desired.

No. 40172—Bond, coated, and waxed paper. Rio de Janeiro, Brazil. Agency desired.

No. 40229—Bristol board, and paper. Havana, Cuba. Agency desired.

No. 40263—Cellophane or similar transparent material in sheets. Zurich, Switzerland. Purchase and agency desired.

No. 40201—Paper of all kinds. Lima, Peru. Agency desired.

No. 40211—Wood pulp wadding. Toronto, Canada. Purchase desired.

No. 40260—Paper bottle manufacturing machinery. Leipzig, Germany. Purchase desired.

Lewis-Shepard to Establish New Branch

The Lewis-Shepard Co., Boston, Mass., announces the purchase of a brick manufacturing building containing approximately 60,000 sq. ft. of floor space at Crawfordsville, Ind.

The new plant will be operated as a branch factory for the manufacture chiefly of skid platforms for lift trucks and storage racks for use with portable elevators. The production of lift trucks and stackers will undoubtedly be added to the Crawfordsville production schedule as fast as possible. It is expected that production will be well organized at the new plant by October 1.

National
Croceine Scarlet FP Conc.

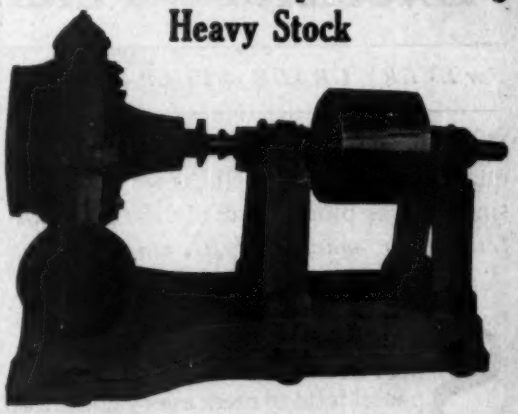
ESPECIALLY recommended for dyeing chemical pulps in the beater.—Possesses excellent fastness to light.—Does not foam, and leaves a nearly colorless "white-water".

National Aniline & Chemical Co., Inc.
40 Rector Street, New York, N. Y.

BOSTON PROVIDENCE CHICAGO CHARLOTTE TORONTO PHILADELPHIA SAN FRANCISCO

NATIONAL DYES

8" Horizontally Split Casing Single Suction Belted Pump for Handling Heavy Stock



Built in sizes ranging from 2" to 18". 42 years designing and building centrifugal pumps for all conditions and service. Our engineering staff is ever at your service.
Please submit your specifications.

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LAWRENCE, MASS.

Manufacturer of "Lawrence" Pump, Centrifugal Pumping Machinery, Vertical Steam Engines, Contractors for Special Machinery

BUILT FOR HARD WORK, LONG LIFE, AND NO WORRY TO THE OWNER

ZAREMBA EVAPORATORS

HAVE ESTABLISHED AN ENVIABLE REPUTATION

IN THE CONCENTRATION OF

SODA BLACK LIQUOR SULPHATE BLACK LIQUOR
SULPHITE WASTE LIQUOR

DUE TO
WIDE EXPERIENCE—THOROUGH ENGINEERING—PAINSTAKING CONSTRUCTION

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506 Crosby Bldg., Buffalo, N. Y.

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"Excelsior" Felts

For EVERY GRADE of PULP & PAPER

We continue to maintain at the top the quality of Excelsior Felts, as we have done since we, as pioneers, made *the first endless paper machine felts manufactured in America.*

Seamless felts for fast running.
Satin Style felts for finish.
Special felts to meet every condition.
Send us your felt problems.

KNOX WOOLEN COMPANY
CAMDEN, MAINE

Sold by
BULKLEY, DUNTON & COMPANY,
75-77 Duane Street, N. Y.
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Made to Order

No tanks carried in stock—all tanks made to order for your special purpose.

We have been building tanks for over fifty years and have particular knowledge of paper mill men's requirements.

The Hauser-Stander Tank Co.
CINCINNATI, OHIO

New Catalogues, Books and Publications

American Blower Corporation, Detroit, Mich.—A new catalogue, No. 10401, gives application and technical data of interest to those who contemplate installations of standard forced draft fans and special grates on domestic and other small furnaces and boilers, to make possible the use of low grade, cheap fuels. Bulletin No. 7818 describes and illustrates 1929 models of the Venturafin Unit Heaters. The new units are made in four sizes to cover practically all industrial heating jobs and have been improved and refined very much over previous models. Copies upon request.

Chain Belt Company, Milwaukee, Wis.—This company together with its Stearns Conveyor Division has just issued the new Rex 230 Catalogue and Engineering Data Book. There are 800 pages of information on chains and chain drives, elevators and conveyors, traveling water screens and construction machinery. The sixty different types of chain are listed in all sizes and illustrated. All types of elevators and conveyors are also shown, as well as water screening equipment and construction machinery.

R. W. Cramer & Co., Inc., New York City—This company has issued a catalogue illustrating the different applications for its Sauter Electric Time Switches. One of the applications mentioned is the use of the switch for power circuits (motors of pumping installations, ventilating installations, automatic machinery, etc.).

DeLaval Steam Turbine Co., Trenton, N. J.—The new catalogue on centrifugal compressors and blowers just issued by this company illustrates the remarkable progress being made by centrifugal machinery in many fields. Turbine-driven blast furnace blowers rated at 60,000 cu. ft. per minute against 30 lbs. maximum pressure at 2800 r.p.m. are shown. Both single and multistage blowers and boosters are shown for use in water gas plants, and in connection with coal gas retorts and coke ovens. The book closes with a concise presentation of the mechanics and thermodynamics of the compression of gases and the physical properties of industrial gases, with numerous illustrative examples worked out in detail.

Metropolitan Life Insurance Co., One Madison Ave., New York City—An interesting brochure which details the major activities of the organization responsible for the inception of the national labor turnover index, the Southern Sales Conference, a survey of industrial development, and other major projects has been published by the Policyholders Service Bureau of this company under the title "Economic Services of the Metropolitan Life Insurance Company". This report contains many items of interest to business men in every classification. "Directing the Plant Safety Work" is the third of a series of bulletins which the Bureau has issued on the subject of industrial safety. This bulletin deals with the need for competent direction of safety activities in both large and small organizations and outlines the qualifications and duties of the safety director. Copies may be had upon application to the Bureau.

Monitor Controller Co., Baltimore, Md.—The Monitor Automatic Brake-Stop Printing Press Controller is featured and its construction described and illustrated in a special booklet No. 114 just issued by this company.

Norwood Engineering Co., Florence, Mass.—A booklet entitled "Norwood Paper Finishing Machinery" has been compiled for convenience as a reference manual for paper mill superintendents, finishing room foremen or mill executives. It presents the essential features of paper finishing machinery as developed and built by this company. The text matter is clearly written and there are numbers of illustrations of machines and typical installations.

Northern Equipment Co., Erie, Pa.—A catalogue just released gives a complete description of Copes Feed Water Regulators for both low and high pressure service, with many interesting photographs of actual installations. The Copes system is a modern method of regulating accurately and scientifically the amount of water fed to a boiler and returning the condensate to the flash tank, hot well or feed water heater.

Schutte & Koerting Co., Philadelphia—A new edition of this company's bulletin 80-B descriptive of its line of heavy duty steam valves has just been issued.

The Superheater Company, New York City—"The Elesco Multiple-loop, Single pass Superheater", bulletin T-19, has been arranged to illustrate how the same basic principle, the multiple-pass arrangement applies to all Elesco superheaters for stationary boilers. Copies on request.

Wallace & Tiernan Co., Inc., Newark, N. J.—Reprints of a paper entitled "Chlorine, the Solution to the Slime Problem in Paper Mills" read at the spring meeting of the Southern Division of American Pulp and Paper Mill Superintendents at Monroe, La., March 23, 1929, by W. L. Saveil, of the Mathieson Alkali Works, Inc., have been sent out by this company in booklet form. Copies upon request.

Westinghouse Electric and Mfg. Co., East Pittsburgh, Pa.—Circular 1676-B on fittings for pipe structures is a complete revision of the old leaflet, and includes many new applications for these pipe fittings such as racks in industrial establishments, railings, display racks, and pipes of all kinds. Other leaflets just out are L-20377 covering geared turbine generator units; 1865, Bedplates with and without Outboard Bearings for Westinghouse-Nuttall Types SVR and DVR Speed Reducers; and 20355-A, Type ES Engine Driven A.C. Generators. Copies upon request.

The Mid-West Machine Co., Dayton, Ohio, has appointed as its Pacific Coast representative, Jay Platt Hamerslag. Mr. Hamerslag's headquarters will be at 655 Russ Building, San Francisco, Calif.

Soda Ash
Bicarbonate of Soda
Calcium Chloride
Caustic Soda

In its absolute control of every factor essential to the production and delivery of its products . . . quarries, refineries, manufacturing plants, warehouses, rail and shipping facilities . . . Michigan is unique in the alkali industry.

This control is directly responsible for Michigan's ability to make immediate delivery in emergencies . . . a feature of Michigan service that has saved many a customer from serious difficulty.

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CALENDERS

are made with

HYDRAULIC,
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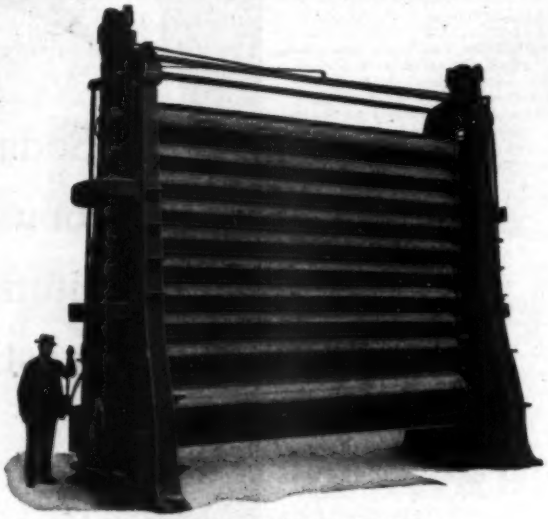
or

RATCHET
LIFT

all operated
from the floor



178" Stack with Hydraulic Lift

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CALENDER ROLLS

are made in
all sizes up
to and including
298"
on the face

FARREL NEW TYPE ROLL GRINDER—ELECTRICALLY DRIVEN THROUGHOUT
Built in 24", 32", 36" and 42" sizes. Fitted with Geared Head, New Crowning Device and Automatically Lubricated

FARREL INDICATING ROLL CALIPER is extremely accurate

FARREL-BIRMINGHAM COMPANY INC.
ANSONIA, CONN.

Successor to: { Farrel Foundry & Machine Co., Ansonia, Conn., Est. 1848.
{ Birmingham Iron Foundry, Derby, Conn., Est. 1836.

"YOU CAN
DO IT BETTER
WITH A BIGGS"

YOUR Cooking or bleaching problems, no matter how complicated can be successfully and economically handled with Biggs Rotary Digesters.

Biggs has kept abreast of the times in designing special Rotary Digesters to meet the various demands of the individual paper manufacturer.

Cooking of chestnut chips, straw, various grasses, bagasse, cotton linters and wood fibre by different processes can be accomplished in the shortest space of time and with the lowest possible maintenance and power requirements in a properly designed Biggs Digester.

Special agitators, steam distributing and washing system and sturdy constructed drives are the result of Biggs contact with the Paper Industry since 1887.

Hundreds of mill executives all over the country have used Biggs Equipment for years.

Whether your requirements demand Riveted or Welded construction we would appreciate an opportunity of serving you.

Perhaps you would like a copy of the Biggs Rotary Book? It is yours for the asking.

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GLOBE and CYLINDER
ROTARY BLEACHING BOILERS
"You Can Do It Better With a Biggs"

E D I T O R I A L

One interesting feature was an extensive safety display by the U. S. Navy Department, which included a miniature representation of all essential facts in the raising of a sunken submarine with pontoons, and the Bureau of Mines gave an actual demonstration of resuscitation, using white rats.

The application of the most modern inventions to the promotion of safety work was illustrated by the use of the movietone. Special safety films have been made and were shown at the Congress to large audiences. The talkies are "telling the story of safety" and the first all-talking safety film made was shown at the Congress. The author of this scenario is Thomas J. Burke, Publicity Director of the National Safety Council.

The sixth annual safety contest which is sponsored by THE PAPER INDUSTRY, will begin January 1, 1930. There is yet ample time for those paper mills that have not identified themselves with the work of the Paper and Pulp Section of the National Safety Council to become members and enter their mills in this contest.

Is the promotion of safety principles **good business**? The investment of a comparatively small amount of money in safety equipment will increase that manufacturer's production and avoid heavy expenditures in compensation costs.

Join the safety crusade. Have a part in this vital national problem and your efforts will serve a two-fold purpose—the conservation of human life and promotion of its by-product, **good business.**

Neglect of the Art of Public Speaking

THERE appears to be a need for a new committee of both Tappi and the Superintendents' Association to develop the art of public speaking among their members. One of the duties of such a committee might include a study of ways and means for impressing on the technical man the desirability of developing a better "stage presence" and greater clearness of presentation of the subject matter which he may be trying to get across. At the Richmond meeting of the Technical Association, Allen Abrams, of the Marathon Paper Mills Company, who had charge of the symposium on Shrinkage, found it necessary to caution the readers of papers and those who took part in their discussion, not to talk to their collar buttons. If a member has a good voice he should be proud to exhibit it as practised speakers do. Stage fright is the occasion of much mumbling and incoherent talk on the part of many who are obliged to face an audience, but it does not explain talking to collar buttons and other forms of soliloquy. If those who take part in discussions would only remember to talk slowly and loudly, it might add immensely to the interest and value of what they had to say. Even in reading a prepared paper some members can seldom be heard more than a few feet away.

The Forthcoming Census of Manufacturers

ACCURATE and timely basic data on production and distribution are essential to a practical solution of the problems confronting American business and industry.

Through appointment by Secretary Lamont, of an Advisory Committee on Manufactures composed of 25 men prominent in business and industrial activities, under the chairmanship of Col. L. S. Horner, president, Niles-Bement-Pond Company, business and industry will for the first time obtain the kind of data through the Census which will be of most practical value in the study of markets and in planning for the future.

This Advisory Committee will determine upon questions to be asked in the forthcoming Census of Manufactures, limiting the questions to those of practical value to manufacturers. It will, also, determine tabulations which ought to be made subsequently, and these will be approached entirely from their potential value to the manufacturer.

The Census Bureau has a tremendous task before it next year—counts on population, manufactures, agriculture, mining and distribution must be taken. But the efforts of the Government to secure for industry better data for its use are dependent very largely upon the hearty co-operation of manufacturers and distributors in furnishing accurate operating data at as early a date as possible. These census reports to the Government are absolutely confidential under the law, and no manufacturer need hesitate to give the Government the operating information it requires.

For their own good the manufacturers and distributors of the country should co-operate with this Advisory Committee by encouraging the furnishing of accurate data at as early a date as possible when requested by the Census Bureau.